

Superfund Records Center

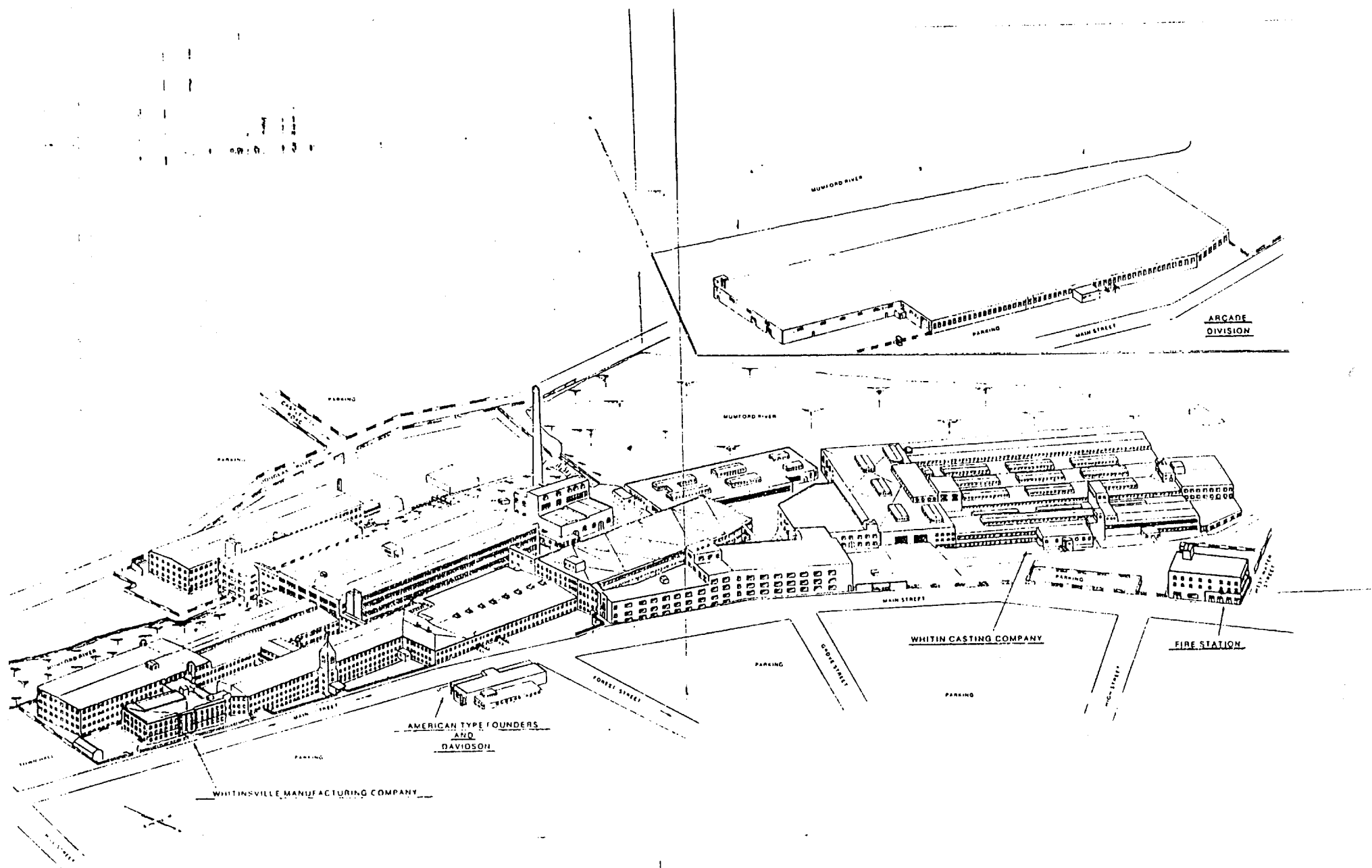
ITE: Covitch
 BREAK: 118
 OTHER: 557637

401095

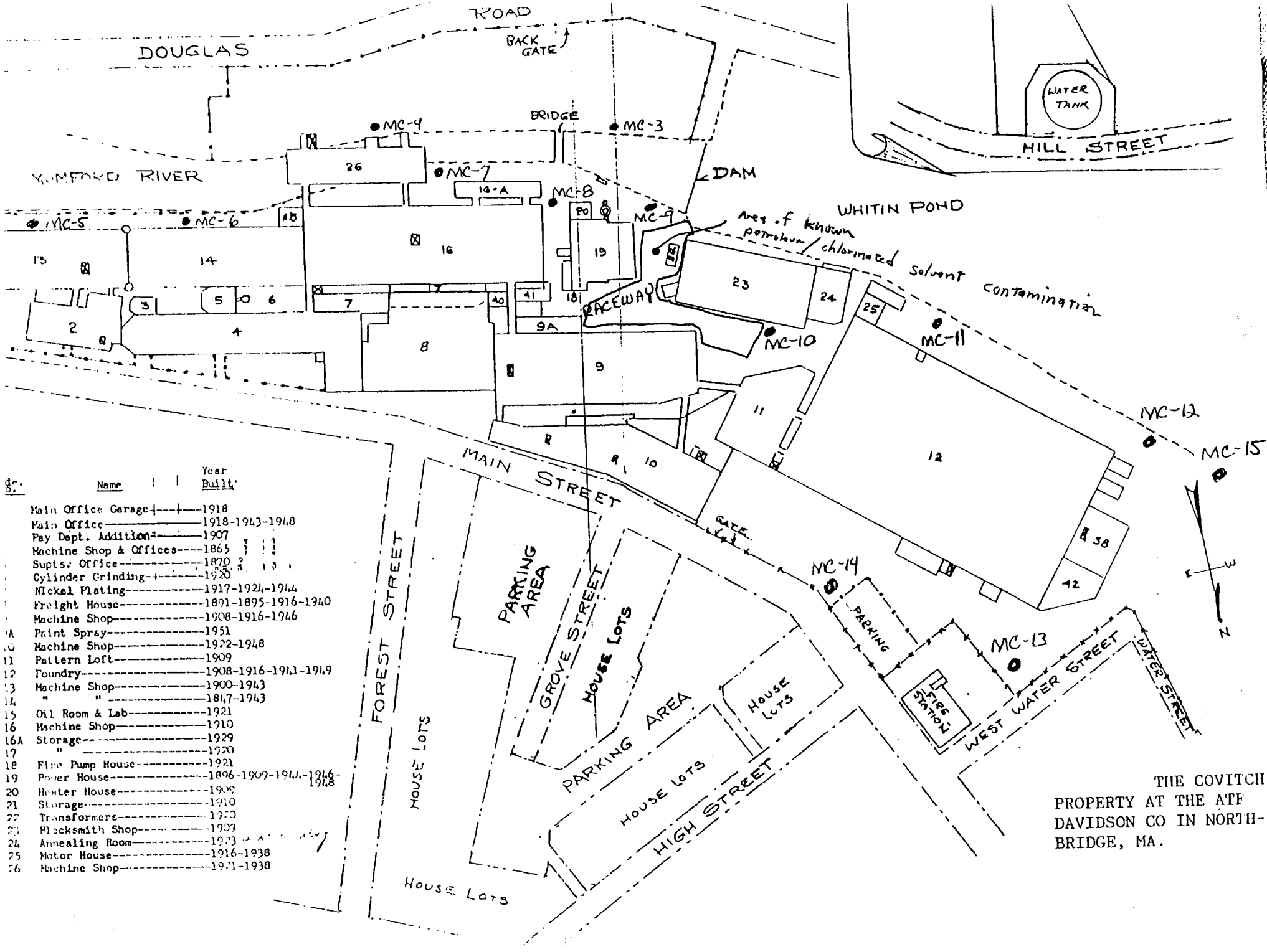
REGION I START SITE HEALTH AND SAFETY PLAN (HASP)

Prepared by: Michael G. Jennings		W.O. No.: 11098-011-001-1162-30	Date: 05/01/96																
Project Identification: Site Name: Covitch Property / Former ATF Davidson Co. TDD: 95-07-0065 EPA Contact: Nancy Smith Site Address: Main Street; Northbridge, MA		Site History: (describe briefly) The facilities of the Covitch Property/Former ATF Davidson Co. were built in the mid-1800's for the production of textile equipment. The major processes included metal casting, metal finishing, and metal heat treating. The wastes were mixed with the spent foundry sand and deposited on-site, adjacent to the manufacturing plant. Past investigations at the site have determined two locations which are contaminated with a combination of VOC's, inorganics, and petroleum product. The site is presently occupied by numerous, active, commercial and industrial operations.																	
Scope of Work: (describe briefly, attach site map including work zones Figure 1) This Health & Safety Plan was prepared in order to complete an on-site reconnaissance of the Covitch Property / Former ATF Davidson Co. site located on Main Street in Northbridge, MA.																			
Directions to Site: Rt. 3(N) to Rt. 495(S). Take Rt. 290(W) off of Rt. 495. Follow Rt. 290(W) to the Rt. 146 exit. Take Rt. 146(S) into Northbridge. Take the Main St/Northbridge exit off of Rt. 146. The site is located on Main Street from #1 thru #355.																			
Regulatory Status:																			
Site regulatory status: <table style="width: 100%;"> <tr> <td style="width: 25%;">CERCLA/SARA</td> <td style="width: 25%;"><input checked="" type="checkbox"/> US EPA</td> <td style="width: 25%;"><input type="checkbox"/> State</td> <td style="width: 25%;"><input type="checkbox"/> NPL Site</td> </tr> <tr> <td>RCRA</td> <td><input type="checkbox"/> US EPA</td> <td><input type="checkbox"/> State</td> <td></td> </tr> <tr> <td>CLEAN WATER ACT</td> <td><input type="checkbox"/> 311</td> <td></td> <td></td> </tr> <tr> <td>OSHA</td> <td><input checked="" type="checkbox"/> 1910</td> <td><input type="checkbox"/> 1926</td> <td><input checked="" type="checkbox"/> Hazard Communication</td> </tr> </table>				CERCLA/SARA	<input checked="" type="checkbox"/> US EPA	<input type="checkbox"/> State	<input type="checkbox"/> NPL Site	RCRA	<input type="checkbox"/> US EPA	<input type="checkbox"/> State		CLEAN WATER ACT	<input type="checkbox"/> 311			OSHA	<input checked="" type="checkbox"/> 1910	<input type="checkbox"/> 1926	<input checked="" type="checkbox"/> Hazard Communication
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Review and Approval Documentation:																			
Reviewed by:																			
a. T.L.	<u>Michael G. Jennings</u>	Date:	<u>5/1/95</u>																
b. P.L.	<u>J. F. Kelly</u>	Date:	<u>5/1/96</u>																
Approved by:																			
<u>Michael G. Jennings</u>		Date: <u>5-1-95</u>																	
<input checked="" type="checkbox"/> START HSO																			
Verbal Approval (Emergency Response/Modifications) Approval by: _____ Date: _____																			
Hazard Assessment and Equipment Selection																			
In accordance with WESTON's Personal Protective Equipment Program and 29 CFR 1910.132 at the site prior to personnel beginning work the Site Health and Safety Coordinator (SHSC) and/or the Site Manager have evaluated conditions and verified that the personal protective equipment selection outlined within this HASP is appropriate for the hazards known or expected to exist. (Refer to Safety Officer Manual Section 2 Personal Protection Program for Guidance)																			
<input checked="" type="checkbox"/> SHSC <input type="checkbox"/> Site Manager		Signature: <u>J. F. Kelly</u> Date: <u>5/2/96</u>																	
Project start date: October 20, 1995	Plan expiration date: August 21, 1996	Amendments:																	
Anticipated Site Visit date: 2 May 1996																			
End date: September 26, 1996																			



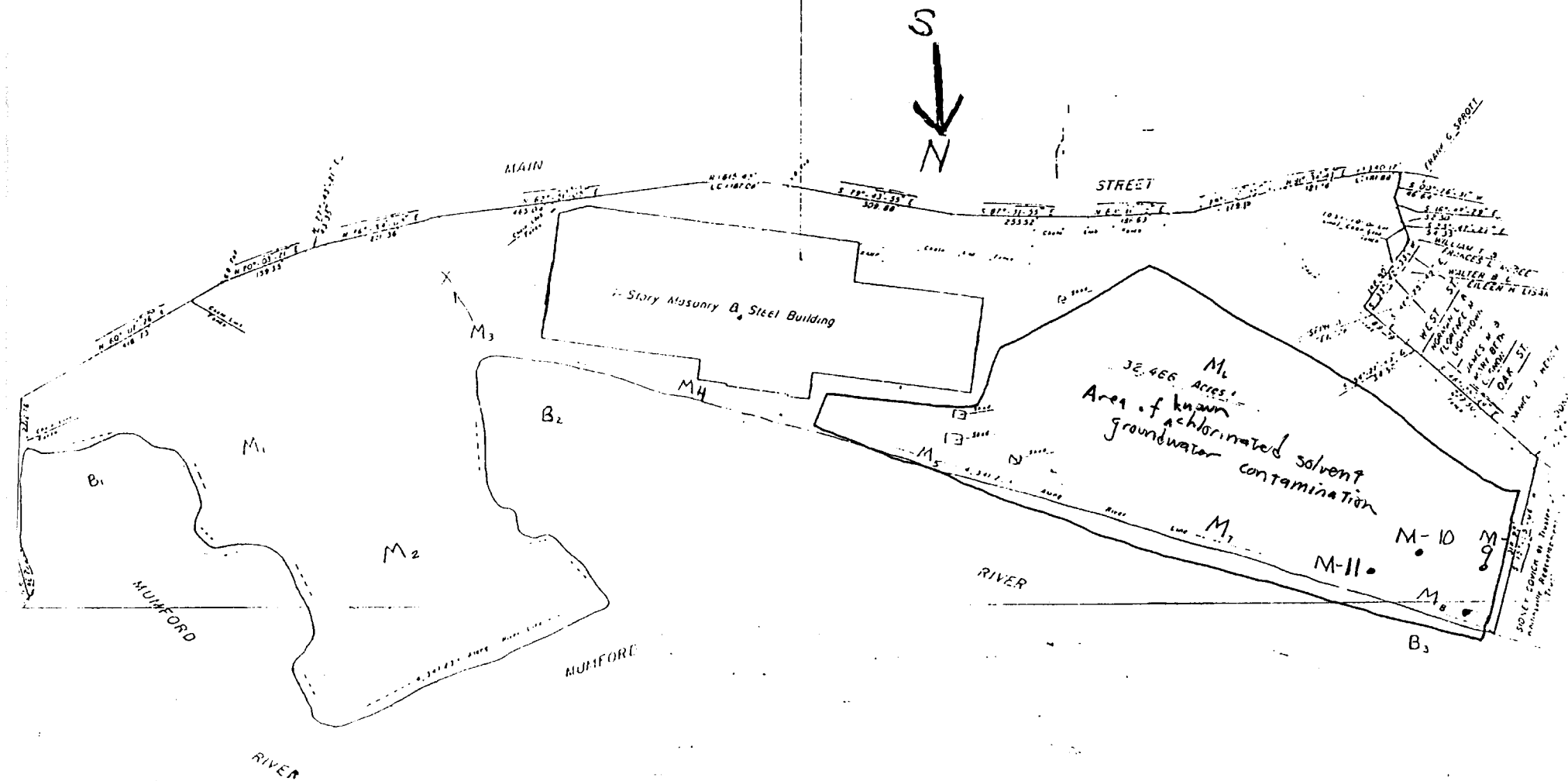


THE ATF DAVIDSON CO, SHOWING THE COVITCH LOCATION AND THE ARCADE LOCATION IN NORTHBRIDGE, MA.



dc.	Name	Year Built
	Main Office Garage	1918
	Main Office	1918-1943-1948
	Pay Dept. Addition	1907
	Machine Shop & Offices	1865
	Supts. Office	1870
	Cylinder Grinding	1920
	Nickel Plating	1917-1924-1944
	Freight House	1891-1895-1916-1940
	Machine Shop	1908-1916-1946
1A	Print Spray	1951
10	Machine Shop	1922-1948
11	Pattern Loft	1909
12	Foundry	1908-1916-1941-1949
13	Machine Shop	1900-1943
14	"	1847-1943
15	Oil Room & Lab	1921
16	Machine Shop	1910
16A	Storage	1929
17	"	1920
18	Fire Pump House	1921
19	Power House	1896-1909-1941-1946-1948
20	Heater House	1908
21	Storage	1910
22	Transformers	1920
23	Blacksmith Shop	1907
24	Annealing Room	1923
25	Motor House	1916-1938
26	Machine Shop	1921-1938

THE COVITCH
PROPERTY AT THE ATF
DAVIDSON CO IN NORTH-
BRIDGE, MA.



THE ARCADE FACILITY AT THE ATF DAVIDSON CO
IN NORTHBRIDGE, MA.

SITE SPECIFIC HAZARD EVALUATION

If box is marked a hazard evaluation form/section must be completed.



CHEMICAL HAZARDS



BIOLOGICAL HAZARDS



RADIATION HAZARDS



PHYSICAL HAZARDS

HEALTH AND SAFETY EVALUATION - CHEMICAL HAZARDS



N/A

Chemical Contaminants of Concern

List chemical and concentration below and locate data sheets in Appendix A (NIOSH pocket guide, ACGIH TLV booklet, etc.) of this HASP.



N/A

Chemicals taken onto Site by WESTON or subcontractors

List chemicals (reagent type chemicals, solutions, or other identified materials brought on-site) and quantities below and locate Material Safety Data Sheets (MSDS) in Appendix B of this HASP.

Chemical Name	Concentration (if known)	Chemical Name	Quantity
Vinyl Chloride (GW)	380 ppb	Isobutylene (gas)	100ppm
1,2-trans-dichloroethylene (GW)	1100 ppb	Pentane (gas)	75%
Trichloroethylene (GW)	13 ppb	Methane (gas)	100ppm
Tetrachloroethylene (GW)	27 ppb	Hydrogen (gas)	100%
Arsenic (Soil)	98 ppb		
Barium (Soil)	560 ppb		
1,1-dichloroethane (GW)	17 ppb		
1,1,1-trichloroethane (GW)	12 ppb		
Benzene (GW)	12 ppb		
Toluene (GW)	57 ppb		
Total Xylenes (GW)	40 ppb		

OSHA SITE SPECIFIC HAZARDOUS SUBSTANCES

The following substances may require specific medical, training, or monitoring based upon concentration or evaluation of risk. See the appropriate citation listed under 29 CFR 1910 or 1926 for additional information.

- | | | |
|----------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------|
| <input type="checkbox"/> 1910.1001 Asbestos | <input type="checkbox"/> 1910.1002 Coal tar pitch volatiles | <input type="checkbox"/> 1910.1003 4-Nitrobiphenyl |
| <input type="checkbox"/> 1910.1004 alpha-Naphthylamine | <input type="checkbox"/> 1910.1005 [Reserved] | <input type="checkbox"/> 1910.1006 Methyl chloromethyl ether |
| <input type="checkbox"/> 1910.1007 3,3'-Dichlorobenzidine (and its salts). | <input type="checkbox"/> 1910.1008 bis-Chloromethyl ether | <input type="checkbox"/> 1910.1009 beta-Naphthylamine |
| <input type="checkbox"/> 1910.1010 Benzidine | <input type="checkbox"/> 1910.1011 4-Aminodiphenyl | <input type="checkbox"/> 1910.1012 Ethyleneimine |
| <input type="checkbox"/> 1910.1013 beta-Propiolactone | <input type="checkbox"/> 1910.1014 2-Acetylaminofluorene | <input type="checkbox"/> 1910.1015 4-Dimethylaminoazobenzene |
| <input type="checkbox"/> 1910.1016 N-Nitrosodimethylamine | <input checked="" type="checkbox"/> 1910.1017 Vinyl chloride | <input type="checkbox"/> 1910.1018 Inorganic arsenic |
| <input type="checkbox"/> 1910.1025 Lead | <input type="checkbox"/> 1910.1027 Cadmium | <input checked="" type="checkbox"/> 1910.1028 Benzene |
| <input type="checkbox"/> 1910.1029 Coke oven emissions | <input type="checkbox"/> 1910.1043 Cotton dust | <input type="checkbox"/> 1910.1044 1,2-dibromo-3-chloropropane |
| <input type="checkbox"/> 1910.1045 Acrylonitrile | <input type="checkbox"/> 1910.1047 Ethylene oxide | <input type="checkbox"/> 1910.1048 Formaldehyde |
| <input type="checkbox"/> 1910.1050 Methylenedianiline | | |

HEALTH AND SAFETY EVALUATION - BIOLOGICAL HAZARDS OF CONCERN <input type="checkbox"/> NA	
<input checked="" type="checkbox"/> Poisonous Plants (FLD 43) Task No(s): 1. On-site Reconnaissance Source: <input type="checkbox"/> Known <input checked="" type="checkbox"/> Suspect Route of Exposure: <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input checked="" type="checkbox"/> Contact <input type="checkbox"/> Direct Penetration	<input checked="" type="checkbox"/> Insects (FLD 43) Task No(s): 1. On-site Reconnaissance Source: <input type="checkbox"/> Known <input checked="" type="checkbox"/> Suspect Route of Exposure: <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Contact <input checked="" type="checkbox"/> Direct Penetration
<input checked="" type="checkbox"/> Snakes, Reptiles (FLD 43) Task No(s): 1. On-site Reconnaissance Source: <input type="checkbox"/> Known <input checked="" type="checkbox"/> Suspect Route of Exposure: <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Contact <input checked="" type="checkbox"/> Direct Penetration	<input checked="" type="checkbox"/> Animals (FLD 43) Task No(s): 1. On-site Reconnaissance Source: <input type="checkbox"/> Known <input checked="" type="checkbox"/> Suspect Route of Exposure: <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Contact <input checked="" type="checkbox"/> Direct Penetration
FLD 43 — WESTON Biohazard Field Operating Procedures: Att. OP <input checked="" type="checkbox"/>	
<input type="checkbox"/> Sewage Task No(s): Source: <input type="checkbox"/> Known <input type="checkbox"/> Suspect Route of Exposure: <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Contact <input type="checkbox"/> Direct Penetration Tetanus Vaccination within Past 7 yrs: <input type="checkbox"/> Yes <input type="checkbox"/> No (see Note #1 below)	<input type="checkbox"/> Etiologic Agents (List) Task No(s): Source: <input type="checkbox"/> Known <input type="checkbox"/> Suspect Route of Exposure: <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Contact <input type="checkbox"/> Direct Penetration
FLD 44 — WESTON Bloodborne Pathogens Exposure Control Plan - First Aid Procedures: Att. OP <input checked="" type="checkbox"/>	
FLD 45 — WESTON Bloodborne Pathogens Exposure Control Plan – Working with Infectious Waste: Att. OP <input type="checkbox"/>	
Note #1: A tetanus injection is recommended every 10 years for employees with "normal exposure risks." However, if employees have frequent potential for exposure at "higher risk," as working with raw sewage, then a frequency of 7 years is recommended.	

HEALTH AND SAFETY EVALUATION — RADIATION HAZARDS OF CONCERN <input checked="" type="checkbox"/> NA								
NONIONIZING RADIATION								
Task #	Type of Nonionizing Radiation	Source On-site	TLV/PEL	Wavelength Range	Control Measures	Monitoring Instrument		
IONIZING RADIATION								
				DAC (µCi/mL)				
Task #	Radionuclide	Major Radiations	Radioactive Half-Life (Years)	D	W	Y	Surface Contamination Limit	Monitoring Instrument

HEALTH AND SAFETY EVALUATION - PHYSICAL HAZARDS OF CONCERN ☐ NA

Phy.Haz.Cond.	Physical Hazard	Att.OP	Weston OP Titles
Loud noise	Hearing loss/disruption of communication	<input checked="" type="checkbox"/>	FLD01 - Noise Protection
Inclement weather	Rain/humidity/cold/ice/snow/lightning	<input checked="" type="checkbox"/>	FLD02 - Inclement Weather
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	<input checked="" type="checkbox"/>	FLD05 - Heat Stress Prevention/Monitoring
Cold Stress	Hypothermia/frostbite	<input type="checkbox"/>	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	<input type="checkbox"/>	FLD07 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/ electrocution	<input type="checkbox"/>	FLD08 - Confined Space Entry
Explosive vapors	Thermal burns/impaction/dismemberment	<input type="checkbox"/>	FLD09 - Hot Work
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	<input checked="" type="checkbox"/>	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven Surfaces	Vehicle accidents/slips/trips/falls	<input type="checkbox"/>	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	<input checked="" type="checkbox"/>	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	<input type="checkbox"/>	FLD13 - Structural Integrity
Hostile persons	Bodily injury	<input type="checkbox"/>	FLD14 - Site Security
Remote Area	Slips/trips/falls/back strain/communication	<input type="checkbox"/>	FLD15 - Remote Area
Improper Cyl.Handling	Mechanical injury/fire/explosion/suffocation	<input type="checkbox"/>	FLD16 - Pressure Systems - Compressed Gases
Water Hazards	Drowning/frostbite/hypothermia/falls/electrocution	<input type="checkbox"/>	FLD19 - Working Over Water
Vehicle Hazards	Struck by vehicle/collision	<input checked="" type="checkbox"/>	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	<input type="checkbox"/>	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards electrocution	<input type="checkbox"/>	FLD22 - Heavy Equipment Operation
Working at elevation	Overhead hazard/falls/electrocution	<input type="checkbox"/>	FLD25 - Working at Elevation
Working at elevation	Overhead hazard/falls/electrocution/slips	<input type="checkbox"/>	FLD26 - Ladders
Trench Cave-in	Crushing/falling/overhead hazards/suffocation	<input type="checkbox"/>	FLD28 - Excavating/Trenching
Improper material handling	Back injury/crushing from load shifts	<input type="checkbox"/>	FLD29 - Materials Handling
Physiochemical	Explosions/fires from oxidizing, flam./corr.material	<input type="checkbox"/>	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	<input type="checkbox"/>	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	<input checked="" type="checkbox"/>	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	<input type="checkbox"/>	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	<input type="checkbox"/>	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	<input type="checkbox"/>	FLD35 - Electrical Safety
Burns/Fires	Heat Stress/Fires/Burns	<input type="checkbox"/>	FLD36 - Welding/Cutting/Burning
Impact/thermal	Thermal burn/high pressure impaction/heat stress	<input type="checkbox"/>	FLD37 - High Pressure Washers
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	<input type="checkbox"/>	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	<input type="checkbox"/>	FLD39 - Illumination
Energy/Release	Unexpected release of energy	<input type="checkbox"/>	FLD42 - Lockout/Tagout

TASK-BY-TASK RISK ASSESSMENT
(Complete One Sheet for Each Task)

TASK DESCRIPTION

Task 1. On-site Reconnaissance, which consists of a walkover of the property and photographing areas of concern. No intrusive or destructive activities are planned.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

HNu photoionization detector, OVA 128, CGI/O2 meter, RAD Micro-R meter, Draeger pump with benzene and vinyl chloride tubes, camera. PPE required is discussed on page 7 of 16. All other equipment required is listed in Attachment F: START SIP Equipment Checklist.

POTENTIAL HAZARDS/RISKS

CHEMICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level?

There is documented soil contamination on site consisting of petroleum and chlorinated solvent contamination. These areas are well documented due to extensive placement of monitoring wells with soil sampling. Knowledge of the areas of contamination along with ambient air monitoring will allow these areas to be avoided.

PHYSICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level?

There could be potential slip, trip, and fall hazards throughout the site. Close attention to surroundings will minimize risks. There is also the possibility of loud noises around active manufacturing machinery. Ear plugs, while in the vicinity of this equipment, will prevent injury from this hazard.

BIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level?

There potentially could be poisonous plants or wild animals along the edge of the site bordering Whitins Pond and the Mumford River.

RADIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level?

There is no documentation of previous radiological surveys. However, based on site history radiological risks are low to none. Radiological monitoring equipment will be utilized during the on-site reconnaissance to account for lack of previous monitoring.

LEVELS OF PROTECTION/JUSTIFICATION

On-site reconnaissance will be conducted in Level D PPE. If Level D action levels as defined on page 9 of 16 are met or exceeded personnel will upgrade to Level C PPE. If Level C action levels are met or exceeded personnel will leave affected areas.

Note: Risk levels are defined as follows: High - very likely to come in contact with identified hazards, Medium - possible contact with identified hazards, Low - not likely to come in contact with identified hazards.

PERSONNEL PROTECTION PLAN

Engineering Controls

Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

1. On-site Reconnaissance: N/A

Administrative Controls

Describe Administrative controls used as part of Personnel Protection Plan:

Task(s)

1. On-site Reconnaissance: 40 hour OSHA training and current medical monitoring. Wear hearing protection when in the vicinity of operating manufacturing equipment.

Personal Protective Equipment

Action Levels for Changing Levels of Protection. Define Action Levels for up or down grade for each task:

Task(s)

1. On-site Reconnaissance: If greater than 5 ppm above background is detected with the PID or FID in the ambient air and sustained; Personnel will upgrade to Level C PPE. At 10 ppm above background personnel will begin to monitor for benzene and vinyl chloride with Draeger tubes. If benzene or vinyl chloride detected team will evacuate affected areas. If benzene or vinyl chloride is not detected work can continue in Level D PPE up to 5 ppm above background on the PID or FID. Above 5 ppm team must upgrade to Level C PPE.

Description of Levels of Protection

Level D	Level D Modified	Level C	Level B
<p>Task(s): 1. On-site Reconnaissance</p> <p><input checked="" type="checkbox"/> Head - Hard Hat (as appropriate)</p> <p><input checked="" type="checkbox"/> Eye (Safety Glasses)</p> <p><input checked="" type="checkbox"/> Hearing - Ear Plugs (As appropriate)</p> <p><input checked="" type="checkbox"/> Appropriate Uniform</p> <p><input checked="" type="checkbox"/> Hand - Gloves (As appropriate)</p> <p><input checked="" type="checkbox"/> Foot - Safety Boots</p> <p><input type="checkbox"/> Other (specify)</p>	<p>Task(s):</p> <p><input type="checkbox"/> Head - Hard Hat (as appropriate)</p> <p><input type="checkbox"/> Eye (Safety Glasses)</p> <p><input type="checkbox"/> Hearing - Ear Plugs</p> <p><input type="checkbox"/> Appropriate Uniform</p> <p><input type="checkbox"/> Coverall (specify type)</p> <p><input type="checkbox"/> Hand - Gloves (inner)</p> <p><input type="checkbox"/> Hand - Gloves (middle)</p> <p><input type="checkbox"/> Hand - Gloves (outer)</p> <p><input type="checkbox"/> Foot - Safety Boots</p> <p><input type="checkbox"/> Foot - Over boots</p> <p><input type="checkbox"/> Other (specify)</p>	<p>Task(s): 1. On-site Reconnaissance</p> <p><input checked="" type="checkbox"/> Head - Hard Hat (as appropriate)</p> <p><input type="checkbox"/> Face (Splash Shield)</p> <p><input checked="" type="checkbox"/> Hearing - Ear Plugs (As appropriate)</p> <p><input checked="" type="checkbox"/> Appropriate Uniform</p> <p><input checked="" type="checkbox"/> Coverall (specify type) Saranex</p> <p><input checked="" type="checkbox"/> Hand - Gloves (inner) Surgical nitrile</p> <p><input type="checkbox"/> Hand - Gloves (middle)</p> <p><input checked="" type="checkbox"/> Hand - Gloves (outer) Nitrile</p> <p><input checked="" type="checkbox"/> Foot - Safety Boots</p> <p><input checked="" type="checkbox"/> Foot - Over boots Disposable booties</p> <p><input checked="" type="checkbox"/> Respirator (Full Face APR)</p> <p><input checked="" type="checkbox"/> Cartridge (GMC-H)</p> <p><input type="checkbox"/> Other (specify)</p>	<p>Task(s):</p> <p><input type="checkbox"/> Head - Hard Hat (as appropriate)</p> <p><input type="checkbox"/> Face (Splash Shield)</p> <p><input type="checkbox"/> Hearing - Ear Plugs</p> <p><input type="checkbox"/> Appropriate Uniform</p> <p><input type="checkbox"/> Coverall (specify type)</p> <p><input type="checkbox"/> Hand - Gloves (inner)</p> <p><input type="checkbox"/> Hand - Gloves (middle)</p> <p><input type="checkbox"/> Hand - Gloves (outer)</p> <p><input type="checkbox"/> Foot - Safety Boots</p> <p><input type="checkbox"/> Foot - Over boots</p> <p><input type="checkbox"/> SCBA (specify type)</p> <p><input type="checkbox"/> Other (specify)</p>

SITE OR PROJECT HAZARD MONITORING PROGRAM

Direct Reading Air Monitoring Instruments

Instrument Selection and Initial Check Record

Reporting Format: ☒ Field Logbook ☐ Field Data Sheets ☐ Air Monitoring Log ☐ Trip Report ☐ Other

Instrument	Task No.(s)	Instrument Number	Checked Upon Receipt	Comment	Initials
<input checked="" type="checkbox"/> CGI/O ₂	1.		<input type="checkbox"/>		
<input type="checkbox"/> CGI/O ₂ /H ₂ S			<input type="checkbox"/>		
<input checked="" type="checkbox"/> RAD	1.		<input type="checkbox"/>		
<input checked="" type="checkbox"/> Micro-R			<input type="checkbox"/>		
<input type="checkbox"/> GM			<input type="checkbox"/>		
<input type="checkbox"/> Other			<input type="checkbox"/>		
<input checked="" type="checkbox"/> PID	1.		<input type="checkbox"/>		
<input checked="" type="checkbox"/> HNU 10.2			<input type="checkbox"/>		
<input type="checkbox"/> HNU 11.7			<input type="checkbox"/>		
<input type="checkbox"/> Photovac, Microtip			<input type="checkbox"/>		
<input type="checkbox"/> OVM			<input type="checkbox"/>		
<input type="checkbox"/> Other			<input type="checkbox"/>		
<input checked="" type="checkbox"/> FID	1.		<input type="checkbox"/>		
<input checked="" type="checkbox"/> FOX 128			<input type="checkbox"/>		
<input type="checkbox"/> RAM, Mini-RAM, Other			<input type="checkbox"/>		
<input type="checkbox"/> Monotox			<input type="checkbox"/>		
<input type="checkbox"/> H ₂ S			<input type="checkbox"/>		
<input type="checkbox"/> CL ₂			<input type="checkbox"/>		
<input type="checkbox"/> HCN			<input type="checkbox"/>		
<input type="checkbox"/> Other			<input type="checkbox"/>		
<input checked="" type="checkbox"/> Pump - Dräger	1.		<input type="checkbox"/>		
<input checked="" type="checkbox"/> Tubes/type: Vinyl Chloride			<input type="checkbox"/>		
<input checked="" type="checkbox"/> Tubes/type: Benzene			<input type="checkbox"/>		
<input type="checkbox"/> Other			<input type="checkbox"/>		
<input type="checkbox"/> Other					

SITE AIR MONITORING PROGRAM

Action Levels

These Action Levels, if not defined by regulation, are some percent (usually 50%) of the applicable PEL/REL/TLV. That number must also be adjusted to account for instrument response factors.

	Tasks	Action Level	Action
		Ambient Air Concentration	
<input checked="" type="checkbox"/> Explosive atmosphere	1.		
		< 10% LEL	Work may continue. Consider toxicity potential.
		10 to 25% LEL	Work may continue. Increase monitoring frequency.
		> 25% LEL	Work must stop. Ventilate area before returning.
<input checked="" type="checkbox"/> Oxygen	1.		
		< 19.5% O ₂	Leave Area. Re-enter only with self-contained breathing apparatus.
		19.5% to 25% O ₂	Work may continue. Investigate changes from 21%.
		> 25% O ₂	Work must stop. Ventilate area before returning.
<input checked="" type="checkbox"/> Radiation	1.		
		< 3 times background	Continue Work
		3 Times Background to < 1 mR/hour	Possible radiation source(s) present. Continue investigation with caution. Perform thorough monitoring. Consult with a Health Physicist.
		> 1 mrem/hour	Potential radiation hazard. Continue investigation only upon the advice of Health Physicist.
<input checked="" type="checkbox"/> Organic gases and vapors			
benzene / vinyl chloride	1.	BKG - 5 units above BKG	Level D [monitor air for vinyl chloride and benzene at 1 unit above BKG, if > 1 unit upgrade to Level B] or leave affected area.
		5 - 25 units above BKG	Level C or leave affected area.
<input type="checkbox"/> Inorganics and particulates			

Note: Action levels listed above do not include confined space entry work.

SITE SAMPLING ACTIVITIES		
Sample Location		
	Locations	Substances Sampled For
<input checked="" type="checkbox"/> Ambient background <input type="checkbox"/> NA	Ambient air will be monitored through-out the site.	
<input type="checkbox"/> Personal samples <input checked="" type="checkbox"/> NA		
<input type="checkbox"/> Onsite samples <input checked="" type="checkbox"/> NA		
<input type="checkbox"/> Offsite samples <input checked="" type="checkbox"/> NA		
<input type="checkbox"/> Background sample stations <input checked="" type="checkbox"/> NA		

SAMPLING SUMMARY LOG								
Work Location Instrument Readings								
Location:	% LEL	% O ₂	PID (units)	FID (units)	Aerosol Monitor (mg/m ³)	Radiation Meter	Detector Tubes ()	

CONTINGENCIES

Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility (LMF)	Milford-Whitinsville Regional Hospital	(508) 473-1190
WESTON Medical Emergency Contact	EMR - Dr. Elayne Theriault	1-800-229-3674
WESTON Health and Safety	WESTON Health and Safety Department	(610) 701-7406 or (610) 692-3000
Fire Department	Local (Northbridge Fire Department)	911
Police Department	Local (Northbridge Police Dept.)	911
Onsite Coordinator	John Kelly	WESTON Cellular
Site Telephone	N/A	N/A
Nearest Telephone	N/A	N/A
Chemtrec		1-800-424-9555
ATSDR		(404) 639-0615
ATF (explosives information)		1-800-424-9555
National Response Center		1-800-942-5969

Local Medical Emergency Facility(s)

Name of Hospital: Milford-Whitinsville Regional Hospital

Address: 14 Prospect St. Milford, MA

Phone No.:
(508) 473-1190

Name of Contact: N/A

Phone No.:

Type of Service:

- ☐ Physical trauma only
☐ Chemical exposure only
☒ Physical trauma and chemical exposure
☒ Available 24 hours

Route to Hospital (written detail):

Exit the site to Main St. Proceed east on Main St. After the Town Hall Main St becomes Linwood Ave. Follow Linwood Ave. east for approximately 1.5 miles to the junction of Rt. 122. Proceed south on Rt. 122 for approximately 2 miles to the junction of Rt. 16. Proceed east on Rt. 16 for approximately 11 miles to the junction of Rt. 16 and Rt. 140 (Prospect Street). Hospital is located at this junction.

Travel time from site:
20-30 minutes

Distance to hospital:
approx. 15 miles

Name/No. of 24-hr Ambulance Service:
Northbridge Fire Dept.
911

Secondary or Specialty Service Provider ☒ NA

Name of Hospital:

Address:

Phone No.:

Name of Contact:

Phone No.:

Type of Service:

- ☐ Physical trauma only
☐ Chemical exposure only
☐ Physical trauma and chemical exposure
☐ Available 24 hours


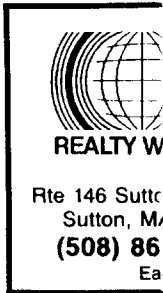
Route to Hospital (written detail):

Travel time from site:

Distance to hospital:

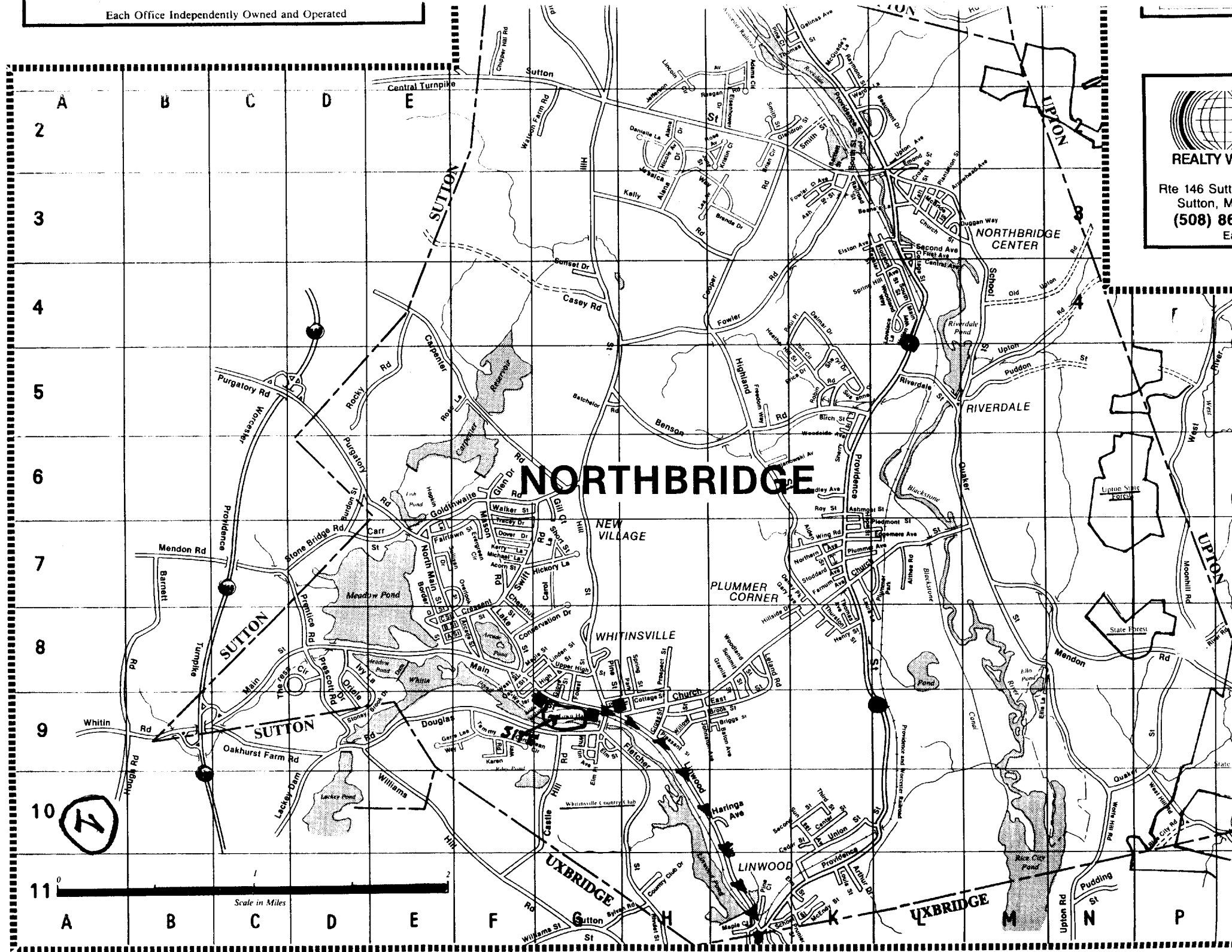
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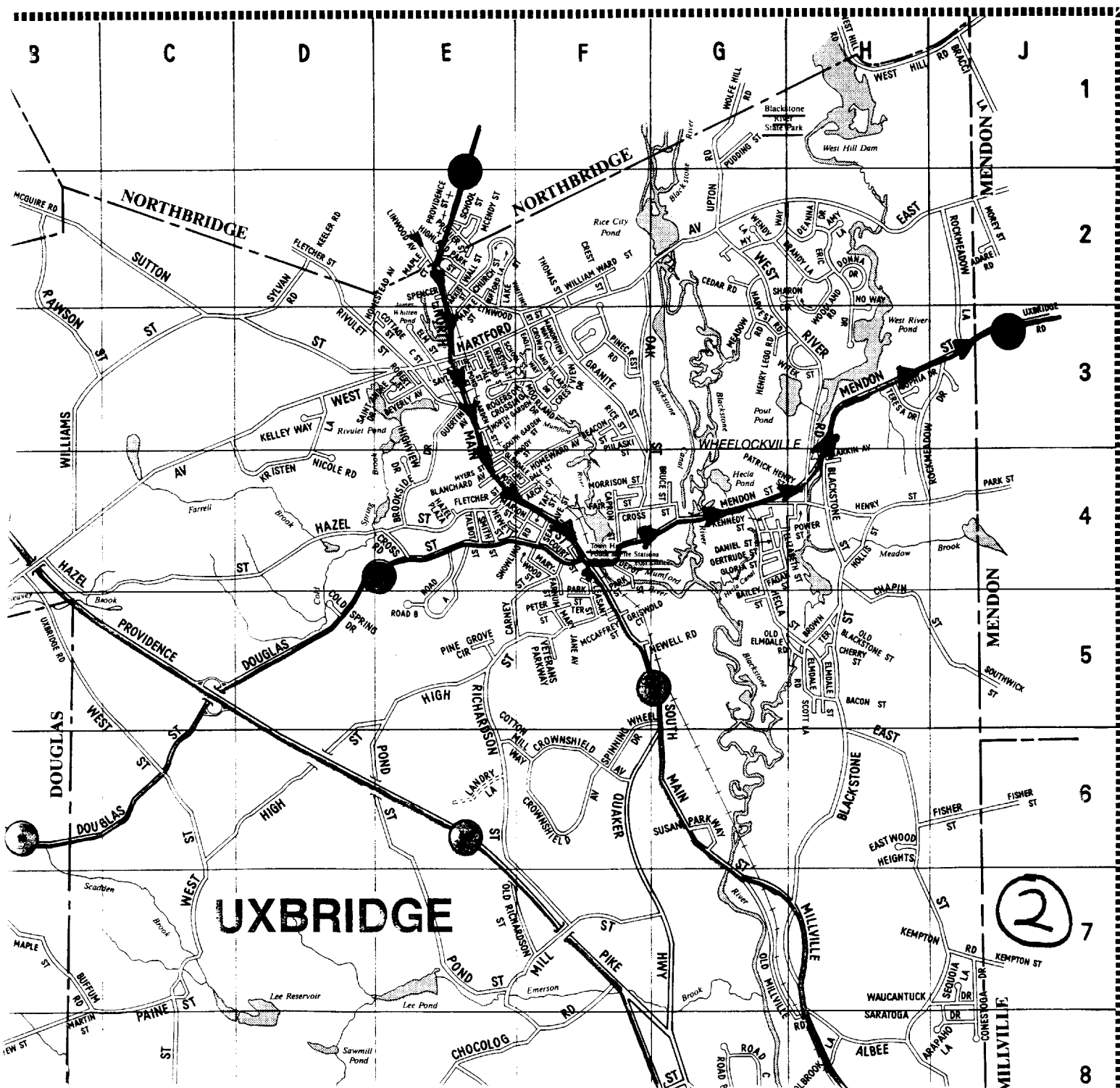


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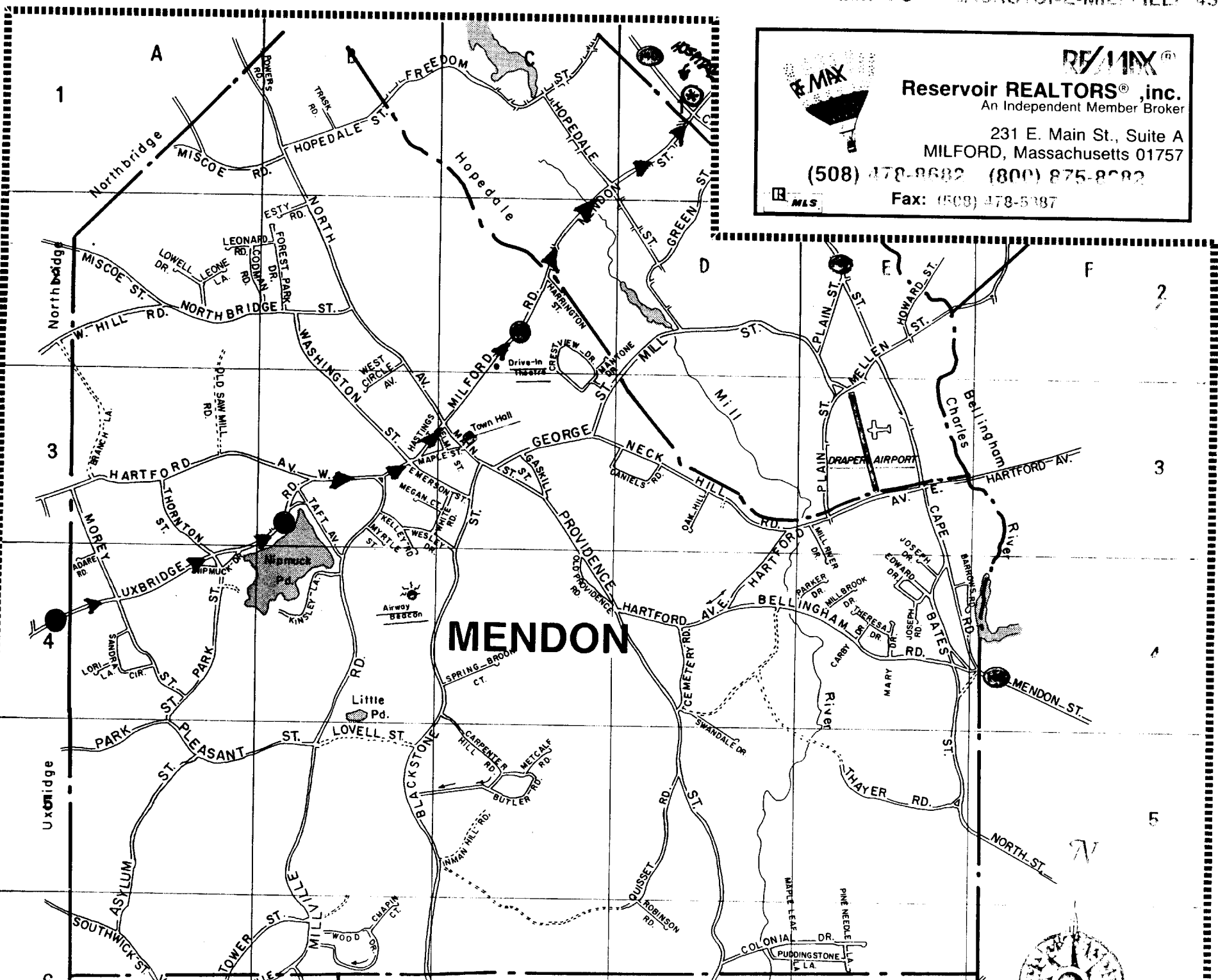
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MENDON



CONTINGENCY

Response Plans

Medical - General

Provide First Aid as trained, assess and determine need for further medical assistance.
Transport or arrange for transport after decontamination.

First Aid Kit required: <input checked="" type="checkbox"/> Yes	Type - Standard field including bloodborne pathogen kit	Location - START vehicle	Special First Aid Procedures: Cyanides on site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No. If yes, contact LMF. Do they have antidote kit? <input type="checkbox"/> Yes <input type="checkbox"/> No
Eyewash required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type	Location	Hydrogen Fluoride on site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No. If yes, need neutralizing ointment for First Aid kit. Contact LMF.
Shower required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type	Location	
Spills: In the event of a spill or release, ensure safety, assess situation and perform containment and control measures as appropriate:	a. If small spill, clean up per MSDS; Notify Emergency Coordinator. b. If large spill, Sound Alarm; Notify Emergency Coordinator. c. Evaluate to pre-determined safe place. d. Account for all personnel. e. Determine if Team can respond safely.	Spill Response Equipment (Type)	Location
Fire/Explosion: In the event of a fire or explosion, ensure personal safety, assess situation and perform containment and control measures as appropriate:	a. Sound Alarm and call assistance, Notify Emergency Coordinator b. Evacuate to predetermined safe place c. Account for personnel d. Use fire extinguisher, <u>only if safe and trained</u> e. Standby to inform Emergency responders of materials and conditions	Fire Extinguisher (Type) 1-10 lb. ABC	Location: START vehicle

Security Problems: Assess team safety. Call police. Call site owner

DECONTAMINATION PLAN

Personnel Decontamination

Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be:

☐ Level B

☒ Level C

☒ Level D

Modifications include:

Equipment Decontamination

Decontamination procedure required for site personnel:

☒ Dry decon

☐ Wet decon

☐ Wash boots and gloves

☐ Remove outer boots

☐ Remove outer gloves

Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure:

☐ Wash with soap and water

☐ Rinse with distilled water

☐ Rinse with isopropanol

☐ Rinse with methanol

☐ Rinse with hexane

Disposition of Decontamination Wastes

Provide a description of waste disposition including identification of storage area, hauler, and final disposal site, if applicable:

Wastes generated during decontamination will be placed in plastic bags labeled appropriately and transported in an EPA vehicle to the START office for disposal.

SITE PERSONNEL AND CERTIFICATION STATUS

WESTON

Name: Michael G. Jennings
Title: Site Leader
Task(s): 1. On-site Reconnaissance.
Certification Level or Description: BT

☒ Medical Current ☒ Training Current
☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name: John F. Kelly
Title: Project Leader
Task(s): 1. On-site Reconnaissance
Certification Level or Description: BS

☒ Medical Current ☒ Training Current
☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name: Joe Schmidl
Title: Geologist
Task(s): 1. On-site Reconnaissance
Certification Level or Description: DS/BT

☒ Medical Current ☒ Training Current
☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name: Mike Wagner
Title: Health & Safety Officer
Task(s): 1. On-site Reconnaissance
Certification Level or Description: BS

☒ Medical Current ☒ Training Current
☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:
Title:
Task(s):
Certification Level or Description:

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:
Title:
Task(s):
Certification Level or Description:

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

TRAINING CURRENT - Training: All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910, 29 CFR 1926 or 29 CFR 1910.120.

FIT TEST CURRENT - Respirator Fit Testing: All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure, air purifying respirator for protection from Asbestos or Lead, employees must have had a quantitative fit test, administered according to OSHA 29 CFR 1910.1001 or 1025 within the last 6 months.

MEDICAL CURRENT - Medical Monitoring Requirements: All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

SITE SPECIFIC HEALTH AND SAFETY PERSONNEL

The Site Health and Safety Coordinator (SHSC) for activities to be conducted at this site is: John F. Kelly

The SHSC has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.

Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSCs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120

Qualifications:

☒ 40 Hour OSHA Training ☒ 8 Hour Refresher Training)
☒ 8 Hour Site Safety Coord. Training ☒ Non-rescue Confined Space Training
☒ Extensive field experience

Designated alternates include: Mike Wagner, Joe Schmidl

HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM

Site Name: Covitch Property/Former ATF Davidson Co.

WO# 11098-001-001-1162-30

Address: Main Street Northbridge, MA

I understand, agree to and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing(s).

Name

Signature

Date

John F Kelly

John F Kelly

5/1/96

Michael G. Jennings

Michael G. Jennings

5/1/96

ATTACHMENT "A"

CHEMICAL CONTAMINANTS

DATA SHEETS

(Attach appropriate data sheets.)

CHEMICAL DATA SUMMARY:

Name & CAS number: **1,1-Dichloroethane** 75-34-3

Structure: CHCl₂CH₃

Conversion Factor: 1 ppm = 4.12 mg/m³

RTECS Number: KI0175000

DOT ID and Guide Numbers:

2362 27

SYNONYMS & TRADENAMES:

Asymmetrical dichloroethane; Ethylidene chloride; 1,1-Ethylidene dichloride

IDLH: 3000 ppm

Odor Threshold: 49-1359 ppm

NIOSH DATA

TWA: 100 ppm (400 mg/m³) See Appendix C (Chloroethanes)

STEL:

CEILING:

NOTES:

OSHA DATA

TWA: 100 ppm (400 mg/m³)

STEL:

CEILING:

NOTES:

PHYSICAL DESCRIPTIONS

Colorless, oily liquid with a chloroform-like odor.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers, strong caustics

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 99.0 Vapor Pressure: 182 mmHg

Solubility: 0.6%

Boiling Point: 135°F

Flash Point: 2°F

Freezing Point: -143°F

Upper Explosive Limit: 11.4%

Lower Explosive Limit: 5.4%

Ionization Potential: 11.06 eV

Specific Gravity: 1.18

Flammability:

Class IB Flammable Liquid

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [1003, Halogenated Hydrocarbons]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent: Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent: Wear appropriate eye protection to prevent eye contact

Workers should wash: The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily:

No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing:

Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point <100 degrees F).

The following equipment should be available:

NO RECOMMENDATION GIVEN

RESPIRATOR SELECTION

NIOSH/OSHA RECOMMENDATIONS

*1000 ppm:

(APF = 10) Any supplied-air respirator

*2500 ppm:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

*3000 ppm:

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

*(Emergency or planned entry into unknown concentrations or IDLH conditions):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation skin; Central Nervous System Depressant/Depression; liver, kidney, lung damage

FIRST AID

Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, promptly flush the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and flush the skin with water. If irritation persists after washing, get medical attention.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Skin, liver, kidneys, lungs, Central Nervous System

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 1000 RCRA Code: U076

CHEMICAL DATA SUMMARY:

Name & CAS number: **Methyl chloroform** 71-55-6
Structure: CH₃CCl₃
Conversion Factor: 1 ppm = 5.55 mg/m³
RTECS Number: KJ2975000
DOT ID and Guide Numbers: 2831 74
SYNONYMS & TRADENAMES:
Chloroethene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)
IDLH: 700 ppm
Odor Threshold: 390 ppm
=====

NIOSH DATA

TWA:
STEL:
CEILING: 350 ppm (1900 mg/m³) [15-minute] See Appendix C (Chloroethanes)
NOTES:

OSHA DATA

TWA: See Appendix G for vacated 1989 OSHA PELs. 350 ppm (1900 mg/m³)
STEL:
CEILING:
NOTES:
=====

PHYSICAL DESCRIPTIONS

Colorless liquid with a mild, chloroform-like odor.
INCOMPATIBILITIES & REACTIVITIES
Strong caustics; strong oxidizers; chemically-active metals such as zinc, aluminum, magnesium powders, sodium & potassium; water [Note: Reacts slowly with water to form hydrochloric acid.]

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 133.4 Vapor Pressure: 100 mmHg
Solubility: 0.4%
Boiling Point: 165°F
Flash Point: ?
Freezing Point: -23°F
Upper Explosive Limit: 12.5%
Lower Explosive Limit: 7.5%
Ionization Potential: 11.00 eV
Specific Gravity: 1.34
Flammability: Combustible Liquid, but burns with difficulty.
=====

MEASUREMENT METHODS

Collection Method: Charcoal tube
Sample work-up: Carbon disulfide
Analytical Method: Gas chromatography with flame ionization detection
Reference: NIOSH Manual of Analytical Methods, 3rd edition
Method Number: [#1003, Halogenated Hydrocarbons]
=====

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent: Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent: Wear appropriate eye protection to prevent eye contact

Workers should wash: The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily: No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing: Work clothing that becomes wet or significantly contaminated should be removed and replaced.

The following equipment should be available:

NO RECOMMENDATION GIVEN
=====

RESPIRATOR SELECTION

NIOSH/OSHA RECOMMENDATIONS

*700 ppm:
(APF = 10) Any supplied-air respirator
(Substance reported to cause eye irritation or damage; may require eye protection)
(APF = 50) Any self-contained breathing apparatus with a full facepiece
*(Emergency or planned entry into unknown concentrations or IDLH conditions):
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode
*Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus
=====

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, skin; Headache, Lassitude, Central Nervous System Depressant/Depression, poor Equilibrium; Dermatitis; Cardiac arrhythmias; liver damage

FIRST AID

Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, Central Nervous System, Cardiovascular system, liver
=====

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 1000

SUBJECT TO SECTION 313:

RCRA Code: U226

CHEMICAL DATA SUMMARY:

Name & CAS number: **o-Xylene** 95-47-6

Structure: C₆H₄(CH₃)₂

Conversion Factor: 1 ppm = 4.41 mg/m³

RTECS Number: ZE2450000

Numbers: 1307 27

SYNONYMS & TRADENAMES:

1,2-Dimethylbenzene; ortho-Xylene; o-Xylol

IDLH: 900 ppm

Odor Threshold: not given

DOT ID and Guide

NIOSH DATA

TWA: 100 ppm (435 mg/m³)

STEL: 150 ppm (655 mg/m³)

CEILING:

NOTES:

OSHA DATA

TWA: See Appendix G for vacated 1989 OSHA PELs. 100 ppm (435 mg/m³)

STEL:

CEILING:

NOTES:

PHYSICAL DESCRIPTIONS

Colorless liquid with an aromatic odor.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers, strong acids

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 106.2 Vapor Pressure: 7 mmHg

Solubility: 0.02 %

Boiling Point: 292°F

Flash Point: 90°F

Freezing Point: -13°F

Upper Explosive Limit: 6.7%

Lower Explosive Limit: 0.9%

Ionization Potential: 8.56 eV

Specific Gravity: 0.88

Flammability:

Class IC Flammable Liquid

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#1501, Aromatic Hydrocarbons]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash:

The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily:

No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing:

Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point < 100 degrees F).

The following equipment should be available:

NO RECOMMENDATION GIVEN

RESPIRATOR SELECTION

NIOSH/OSHA RECOMMENDATIONS

*900 ppm:

(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)

(Substance reported to cause eye irritation or damage; may require eye protection)

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)

(Substance reported to cause eye irritation or damage; may require eye protection)

(APF = 10) Any supplied-air respirator

(Substance reported to cause eye irritation or damage; may require eye protection)

(APF = 50) Any self-contained breathing apparatus with a full facepiece

*(Emergency or planned entry into unknown concentrations or IDLH conditions):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, skin, nose, throat; Dizziness, excitement, Drowsiness, Incoordination, staggering gait; Corneal vacuolization; anorexia, Nausea, Vomiting, abdominal pain; Dermatitis

FIRST AID

Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, Respiratory system, Central Nervous System, Gastrointestinal tract, blood, liver, kidneys

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 1000

SUBJECT TO SECTION 313:

RCRA Code: U239

CHEMICAL DATA SUMMARY:

Name & CAS number: **Toluene** 108-88-3

Structure: C₆H₅CH₃

Conversion Factor: 1 ppm = 3.83 mg/m³

RTECS Number: XS5250000

DOT ID and Guide Numbers:

1294 27

SYNONYMS & TRADENAMES:

Methyl benzene, Methyl benzol, Phenyl methane, Toluol

IDLH: 500 ppm

Odor Threshold: 0.16-37 ppm

=====

NIOSH DATA

TWA: 100 ppm (375 mg/m³)

STEL: 150 ppm (560 mg/m³)

CEILING:

NOTES:

OSHA DATA

TWA: See Appendix G for vacated 1989 OSHA PELs. 200 ppm

STEL:

CEILING: 300 ppm 500 ppm (10-minute maximum peak)

NOTES:

=====

PHYSICAL DESCRIPTIONS

Colorless liquid with a sweet, pungent, benzene-like odor.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 92.1 Vapor Pressure: 21 mmHg

Solubility: (74°F): 0.07%

Boiling Point: 232°F

Flash Point: 40°F

Freezing Point: -139°F

Upper Explosive Limit: 7.1%

Lower Explosive Limit: 1.1%

Ionization Potential: 8.82 eV

Specific Gravity: 0.87

Flammability: Class IB Flammable Liquid

=====

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#1500, Hydrocarbons]

=====

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact. Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash: The worker should immediately wash the skin when it becomes contaminated. Work clothing should be changed daily: No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing: Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point <100 degrees F).

The following equipment should be available:

NO RECOMMENDATION GIVEN

=====

RESPIRATOR SELECTION

NIOSH RECOMMENDATIONS

*500 ppm: (APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s) (Substance reported to cause eye irritation or damage; may require eye protection)

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s) (Substance reported to cause eye irritation or damage; may require eye protection)

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

(APF = 10) Any supplied-air respirator

(Substance reported to cause eye irritation or damage; may require eye protection)

(APF = 50) Any self-contained breathing apparatus with a full facepiece

*(Emergency or planned entry into unknown concentrations or IDLH conditions):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus

operated in pressure-demand or other positive-pressure mode

*Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister; Any appropriate escape-type, self-contained breathing apparatus

=====

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, nose; Fatigue, Weakness, Confusion, Euphoria, Dizziness, Headache; dilated pupils, Lacrimation; Nervousness, Muscle Fatigue, Insomnia; Paresthesia; Dermatitis; liver, kidney damage

FIRST AID

Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE

ARE: Eyes, skin, Respiratory system, Central Nervous System, liver, kidneys

=====

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 1000

SUBJECT TO SECTION 313:

RCRA Code: U220

CHEMICAL DATA SUMMARY:

Name & CAS number: **Benzene** 71-43-2

Structure: C₆H₆

Conversion Factor: 1 ppm = 3.25 mg/m³

RTECS Number: CY1400000

DOT ID and Guide

Numbers: 1114 27

SYNONYMS & TRADENAMES:

Benzol, Phenyl hydride

IDLH: 500 ppm

Odor Threshold: 34-119 ppm

NIOSH DATA

TWA: 0.1 ppm

STEL: 1 ppm See Appendix A

CEILING:

NOTES: NIOSH considers this substance to be an occupational carcinogen.

OSHA DATA

TWA: 1 ppm

STEL: 5 ppm See Appendix F

CEILING:

NOTES: [1910.1028]

PHYSICAL DESCRIPTIONS

Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers, many fluorides & perchlorates, nitric acid

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 78.1 Vapor Pressure: 75 mmHg

Solubility: 0.07%

Boiling Point: 176°F

Flash Point: 12°F

Freezing Point: 42°F

Upper Explosive

Limit: 7.8%

Lower Explosive Limit: 1.2%

Ionization Potential: 9.24 eV

Specific Gravity: 0.88

Flammability:

Class IB Flammable Liquid

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#1500, Hydrocarbons] [Also #3700.]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash:

The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily:

No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing:

Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point <100 degrees F).

The following equipment should be available:

Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility for exposure.

RESPIRATOR SELECTION

NIOSH RECOMMENDATIONS

*At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated

in pressure-demand or positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask)

with a chin-style, front- or back-mounted organic vapor canister

Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, skin, nose, Respiratory System; Giddiness; Headache, Nausea, staggered gait; Fatigue, anorexia, Lassitude; Dermatitis; bone marrow Depressant/Depression; Carcinogen

FIRST AID

Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, immediately wash the contaminated skin with soap and water. If this chemical penetrates the clothing, immediately remove the clothing, wash the skin with soap and water, and get medical attention promptly.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, Respiratory system, blood, Central Nervous System, bone marrow [leukemia]

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 10

SUBJECT TO SECTION 313:

RCRA Code: U019

CHEMICAL DATA SUMMARY:

Name & CAS number: **Barium chloride (as Ba)** 10361-37-2

Structure: BaCl₂

Conversion Factor:

RTECS Number: CQ8750000

DOT ID and Guide Numbers: 1564 55 (Barium compound, n.o.s.)

SYNONYMS & TRADENAMES:

Barium dichloride

IDLH: 50 mg/m³ (as Ba)

Odor Threshold: not given

NIOSH DATA

TWA: 0.5 mg/m³

STEL:

CEILING:

NOTES: [*Note: The REL also applies to other soluble barium compounds (as Ba) except Barium sulfate.]

OSHA DATA

TWA: 0.5 mg/m³

STEL:

CEILING:

NOTES: [*Note: The PEL also applies to other soluble barium compounds (as Ba) except Barium sulfate.]

PHYSICAL DESCRIPTIONS

White, odorless solid.

INCOMPATIBILITIES & REACTIVITIES

Acids, oxidizers

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 208.2

Vapor Pressure: Low

Solubility: 38 %

Boiling Point: 2840°F

Flash Point: NA

Melting Point: 1765°F

Upper Explosive Limit: NA

Lower Explosive Limit: NA

Ionization Potential: ?

Specific Gravity: 3.86

Flammability: Noncombustible Solid

MEASUREMENT METHODS

Collection Method: Particulate filter

Sample work-up: Water

Analytical Method: Atomic absorption spectrometry

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#7056, Barium, soluble cmpds]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash:

The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily:

Workers whose clothing may have become contaminated should change into uncontaminated clothing before leaving the work premises.

Remove Clothing:

Work clothing that becomes wet or significantly contaminated should be removed and replaced.

The following equipment should be available:

NO RECOMMENDATION GIVEN

RESPIRATOR SELECTION

NIOSH/OSHA RECOMMENDATIONS

*5 mg/m³:

(APF = 10) Any dust and mist respirator except single-use and quarter-mask respirators

(APF = 10) Any supplied-air respirator

*12.5 mg/m³:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with a dust and mist filter

*25 mg/m³:

(APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode

(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

*50 mg/m³:

(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

*(Emergency or planned entry into unknown concentrations or IDLH conditions):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter

Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, skin, upper Respiratory System; skin burns; gastroenteritis; Muscle spasm; slow pulse, extrasystoles; hypokalemia

FIRST AID

Eye:

If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin:

If this chemical contacts the skin, immediately flush the contaminated skin with water. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin with water. Get medical attention promptly.

Breath:

If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow:

If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, Respiratory system, heart, Central Nervous System

CHEMICAL DATA SUMMARY:

Name & CAS number: **Arsenic** (inorganic compounds, as As) 7440-38-2

Structure: As (Metal)

Conversion Factor:

RTECS Number: CG0525000 (Metal)

DOT ID and Guide Numbers: 1558 53 (Metal)

SYNONYMS & TRADENAMES:

Arsenic metal: Arsenia, Other synonyms vary depending upon the specific As compound. [Note: OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE.]

IDLH: 5 mg/m³ (as As)

Odor Threshold: not given

NIOSH DATA

TWA:

STEL:

CEILING: 0.002 mg/m³ [15-minute] See Appendix A

NOTES: NIOSH considers this substance to be an occupational carcinogen.

OSHA DATA

TWA: [See 1910.1018] 0.010 mg/m³

STEL:

CEILING:

NOTES:

PHYSICAL DESCRIPTIONS

Metal: Silver-gray or tin-white, brittle, odorless solid.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 74.9 Vapor Pressure: 0 mmHg (approx)

Solubility: Insoluble

Boiling Point: Sublimes

Flash Point: NA

Melting Point: 1135°F (Sublimes)

Upper Explosive Limit: NA

Lower Explosive Limit: NA

Ionization Potential: NA

Specific Gravity: 5.73 (Metal)

Flammability:

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

MEASUREMENT METHODS

Collection Method: Particulate filter

Sample work-up: Acid

Analytical Method: Atomic absorption spectrometry

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#7900]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash:

The worker should immediately wash the skin when it becomes contaminated.

The worker should wash daily at the end of each work shift.

Work clothing should be changed daily:

Workers whose clothing may have become contaminated should change into uncontaminated clothing before leaving the work premises.

Remove Clothing: Work clothing that becomes wet or significantly contaminated should be removed and replaced.

The following equipment should be available:

Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility for exposure.

RESPIRATOR SELECTION

NIOSH RECOMMENDATIONS

*At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration): (APF = 10,000) Any self-contained breathing

apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister having a high-efficiency particulate filter. Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Ulceration of nasal septum, Dermatitis, Gastrointestinal disturbances, Peripheral neuropathy, Respiratory Irritation, Hyperpigmentation of skin, Carcinogen

FIRST AID

Eye:

If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, immediately wash the contaminated skin with soap and water. If this chemical penetrates the clothing, immediately remove the clothing, wash the skin with soap and water, and get medical attention promptly.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Liver, kidneys, skin, lungs, lymphatic sys [lung & lymphatic cancer]

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 1

SUBJECT TO SECTION 313:

No reporting of releases required if the diameter of the pieces of the solid metal released is equal to or exceeds 100 micrometers (0.004 inches).

CHEMICAL DATA SUMMARY:

Name & CAS number: **Tetrachloroethylene** 127-18-4
Structure: Cl₂C=CCl₂
Conversion Factor: 1 ppm = 6.89 mg/m³
RTECS Number: KX3850000
DOT ID and Guide Numbers: 1897 74

SYNONYMS & TRADENAMES:

Perchloroethylene, Perchloroethylene, Perk, Tetrachlorethylene

IDLH: 150 ppm

Odor Threshold: 47 ppm

NIOSH DATA

TWA: NIOSH considers this substance to be an occupational carcinogen.

Minimize workplace exposure concentrations. See Appendix A

STEL:

CEILING:

NOTES:

OSHA DATA

TWA: See Appendix G for vacated 1989 OSHA PELs. 100 ppm

STEL:

CEILING: 200 ppm 300 ppm (5-minute maximum peak in any 3-hours)

NOTES:

PHYSICAL DESCRIPTIONS

Colorless liquid with a mild, chloroform-like odor.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers; chemically-active metals such as lithium, beryllium & barium; caustic soda; sodium hydroxide; potash

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 165.8 Vapor Pressure: 14 mmHg

Solubility: 0.02 %

Boiling Point: 250°F

Flash Point: NA

Freezing Point: -2°F

Upper Explosive Limit: NA

Lower Explosive Limit: NA

Ionization Potential: 9.32 eV

Specific Gravity: 1.62

Flammability:

Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene.

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#1003, Halogenated Hydrocarbons]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash:

The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily:

No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing:

Work clothing that becomes wet or significantly contaminated should be removed and replaced.

The following equipment should be available:

Eyewash fountains should be provided in areas where there is any possibility

that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility for exposure.

RESPIRATOR SELECTION NIOSH RECOMMENDATIONS

*At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, skin, nose, throat, Respiratory System; Nausea; flush face, neck; Vertigo, Dizziness, Incoordination; Headache, Somnolence; skin Erythema; liver damage; Carcinogen

FIRST AID

Eye:

If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin:

If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

Breath:

If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow:

If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, Respiratory system, liver, kidneys, Central Nervous System [in animals: liver tumors]

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 100

SUBJECT TO SECTION 313:

RCRA Code: U210

CHEMICAL DATA SUMMARY:

Name & CAS number: **Trichloroethylene** 79-01-6

Structure: ClC(Cl)(Cl)C

Conversion Factor: 1 ppm = 5.46 mg/m³

RTECS Number: KX4550000

DOT ID and Guide Numbers: 1710 74

SYNONYMS & TRADENAMES:

Ethylene trichloride, TCE, Trichloroethene, Trilene

IDLH: 1000 ppm

odor Threshold: 82 ppm

NIOSH DATA

TWA: NIOSH considers this substance to be an occupational carcinogen. See Appendix A See Appendix C

STEL:

CEILING:

NOTES:

OSHA DATA

TWA: See Appendix G for vacated 1989 OSHA PELs. 100 ppm

STEL:

CEILING: 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)

NOTES:

PHYSICAL DESCRIPTIONS

Colorless liquid (unless dyed blue) with a chloroform-like odor.

INCOMPATIBILITIES & REACTIVITIES

Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 131.4 Vapor Pressure: 58 mmHg

Solubility: (77°F): 0.0001%

Boiling Point: 189°F

Flash Point: ?

Freezing Point: -99°F

Upper Explosive Limit: (77°F): 10.5%

Lower Explosive Limit: (77°F): 8%

Ionization Potential: 9.45 eV

Specific Gravity: 1.46

Flammability: Combustible Liquid, but burns with difficulty.

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [1022]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent: Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent: Wear appropriate eye protection to prevent eye contact

Workers should wash: The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily: No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing: Work clothing that becomes wet or significantly contaminated should be removed and replaced.

The following equipment should be available: Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility for exposure.

RESPIRATOR SELECTION

NIOSH RECOMMENDATIONS

*At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece

and is operated in a pressure-demand or other positive-pressure mode (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, skin; Headache, Vertigo; Visual Disturbance, Fatigue, Giddiness, tremor, Somnolence, Nausea, Vomiting; Dermatitis; Cardiac arrhythmias, Paresthesia; liver Injury; Carcinogen

FIRST AID

Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, Respiratory system, heart, liver, kidneys, Central Nervous System [in animals: liver & kidney cancer]

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 100

SUBJECT TO SECTION 313:

RCRA Code: U228

CHEMICAL DATA SUMMARY:

Name & CAS number: **Ethylene dichloride** 107-06-2

Structure: ClCH₂CH₂Cl

Conversion Factor: 1 ppm = 4.11 mg/m³

RTECS Number: KI0525000

DOT ID and Guide Numbers:

1184 26

SYNONYMS & TRADENAMES:

1,2-Dichloroethane; Ethylene chloride; Glycol dichloride

IDLH: 50 ppm

Odor Threshold: 6-185 ppm

NIOSH DATA

TWA: 1 ppm (4 mg/m³)

STEL: 2 ppm (8 mg/m³) See Appendix A See Appendix C (Chloroethanes)

CEILING:

NOTES: NIOSH considers this substance to be an occupational carcinogen.

OSHA DATA

TWA: See Appendix G for vacated 1989 OSHA PELs. 50 ppm

STEL:

CEILING: 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]

NOTES:

PHYSICAL DESCRIPTIONS

Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.]

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers & caustics; chemically-active metals such as magnesium or aluminum powder, sodium & potassium; liquid ammonia [Note: Decomposes to vinyl chloride & HCl above 1112°F.]

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 99.0 Vapor Pressure: 64 mmHg

Solubility: 0.9%

Boiling Point: 182°F

Flash Point: 56°F

Freezing Point: -32°F

Upper Explosive Limit: 16%

Lower Explosive Limit: 6.2%

Ionization Potential: 11.05 eV

Specific Gravity: 1.24

Flammability:

Class IB Flammable Liquid

MEASUREMENT METHODS

Collection Method: Charcoal tube

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [#1003, Halogenated Hydrocarbons]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent:

Wear appropriate personal protective clothing to prevent skin contact.

Wear eye protection to prevent:

Wear appropriate eye protection to prevent eye contact

Workers should wash:

The worker should immediately wash the skin when it becomes contaminated.

Work clothing should be changed daily:

No recommendation is made specifying the need for the worker to change clothing after the workshift.

Remove Clothing:

Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point < 100 degrees F).

The following equipment should be available:

Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility for exposure.

RESPIRATOR SELECTION

NIOSH RECOMMENDATIONS

*At concentrations above the NIOSH REL, or where there is no REL, at

any detectable concentration):

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Irritation eyes, Corneal Opacity; Central Nervous System

Depressant/Depression; Nausea, Vomiting; Dermatitis; liver, kidney, Cardiovascular system damage; Carcinogen

FIRST AID

Eye:

If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin:

If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

Breath:

If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow:

If this chemical has been swallowed, get medical attention immediately.

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Eyes, skin, kidneys, liver, Central Nervous System, Cardiovascular system [in animals: forestomach, mammary gland & circulatory sys cancer]

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 100

SUBJECT TO SECTION 313:

RCRA Code: U077

CHEMICAL DATA SUMMARY:

Name & CAS number: **Vinyl chloride** 75-01-4

Structure: CH₂=CHCl

Conversion Factor: 1 ppm = 2.60 mg/m³

RTECS Number: KU9625000

DOT ID and Guide Numbers: 1086 17

SYNONYMS & TRADENAMES:

Chloroethene, Chloroethylene, Ethylene monochloride, Monochloroethene, Monochloroethylene, VC, Vinyl chloride monomer (VCM)

IDLH: N.D.

Odor Threshold: 10-20 ppm

NIOSH DATA

TWA: NIOSH considers this substance to be an occupational carcinogen. See Appendix A

STEL:

CEILING:

NOTES:

OSHA DATA

TWA: 1 ppm

STEL:

CEILING: 5 ppm [15-minute]

NOTES: [1910.1017]

PHYSICAL DESCRIPTIONS

Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations. [Note: Shipped as a liquefied compressed gas.]

INCOMPATIBILITIES & REACTIVITIES

Copper, oxidizers, aluminum, peroxides, iron, steel [Note: Polymerizes in air, sunlight, or heat unless stabilized by inhibitors such as phenol. Attacks iron & steel in presence of moisture.]

CHEMICAL & PHYSICAL PROPERTIES

Molecular Weight: 62.5 Vapor Pressure: 3.3 atm

Solubility: (77°F): 0.1 %

Boiling Point: 7°F

Flash Point: NA (Gas)

Freezing Point: -256°F

Upper Explosive Limit: 33.0 %

Lower Explosive Limit: 3.6 %

Ionization Potential: 9.99 eV

Specific Gravity:

Flammability: Flammable Gas

MEASUREMENT METHODS

Collection Method: Charcoal tube (Two are used in series.)

Sample work-up: Carbon disulfide

Analytical Method: Gas chromatography with flame ionization detection

Reference: NIOSH Manual of Analytical Methods, 3rd edition

Method Number: [1007]

PERSONAL PROTECTION & SANITATION

Wear appropriate equipment to prevent: Wear appropriate personal protective clothing to prevent the skin from becoming frozen from contact with the liquid or from contact with vessels containing the liquid.

Wear eye protection to prevent: Wear appropriate eye protection to prevent eye contact with the liquid that could result in burns or tissue damage from frostbite.

Workers should wash: No recommendation is made specifying the need for washing the substance from the skin (either immediately or at the end of the work shift).

Work clothing should be changed daily: No recommendation is made specifying the need for the worker to change clothing after the work shift.

Remove Clothing: Work clothing that becomes wet should be immediately removed due to its flammability hazard (i.e., for liquids with a flash point <100 degrees F).

The following equipment should be available: Quick drench facilities and or eyewash fountains should be provided within the immediate work area for emergency use where there is any possibility of exposure to liquids that are extremely cold or rapidly evaporating.

RESPIRATOR SELECTION

NIOSH RECOMMENDATIONS

*At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration):

(APF = 10,000) Any self-contained breathing apparatus that has a fullfacepiece and

is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode

*Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern Any appropriate escape-type, self-contained breathing apparatus

ROUTES OF EXPOSURE

SYMPTOMS OF EXPOSURE

Weakness; abdominal pain, Gastrointestinal bleeding; enlarged liver; pallor or Cyanosis of extremities; liq: frostbite; Carcinogen

FIRST AID

Eye: If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the lower and upper eyelids. If irritation, pain, swelling, lacrimation, or photophobia persist, get medical attention as soon as possible.

Skin: If frostbite has occurred, seek medical attention immediately; do NOT rub the affected areas or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has NOT occurred, immediately and thoroughly wash contaminated skin with soap and water.

Breath: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: none given

ORGANS AFFECTED BY EXPOSURE TO THIS SUBSTANCE ARE:

Liver, Central Nervous System, blood, Respiratory system, lymphatic sys [liver cancer]

SARA REPORTING LEVELS

SECTION 304:

Cercla Reportable Quantity (lbs): 1

SUBJECT TO SECTION 313:

RCRA Code: U043

ATTACHMENT "B"

MATERIAL SAFETY DATA SHEETS

(MSDS)

MATERIAL SAFETY DATA SHEET

SAFETY DATA SHEET MAR 12 1984

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME
Mine Safety Appliances Company

EMERGENCY TELEPHONE NO.
(412) 273-5500

ADDRESS (Number, Street, City, State, and ZIP Code)
201 N. Braddock Avenue, Pittsburgh, PA 15208

CHEMICAL NAME AND SYNONYMS
CH₃(CH₂)₃CH₃ (Pentane)

TRADE NAME AND SYNONYMS
466193 Calibration Gas, Pentane in air

CHEMICAL FAMILY
Hydrocarbon

FORMULA
CH₃(CH₂)₃CH₃ in air

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS N.A.			FILLER METAL PLUS COATING OR CORE FLUX N.A.		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Pentane				0.75	600 RPM

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H ₂ O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____=1)	N.A.
SOLUBILITY IN WATER	N.A.		
APPEARANCE AND ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

SECTION IV - FIRE AND EXPLOSION HAZARDS				
FLASH POINT (Method used)	N.A.	FLAMMABLE LIMITS	Let 1.4%	Uel 8.0%
EXTINGUISHING MEDIA	Water, CO ₂ , Foam			
SPECIAL FIRE FIGHTING PROCEDURES	None			
UNUSUAL FIRE AND EXPLOSION HAZARDS				
None				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	600 PPM for Pentane
EFFECTS OF OVEREXPOSURE	Drowsiness, irritation of eyes and nose.
EMERGENCY AND FIRST AID PROCEDURES	None

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		None	
HAZARDOUS DECOMPOSITION PRODUCTS		None	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Ventilation of area	
WASTE DISPOSAL METHOD	
Do not incinerate--gas under pressure--300 psig at 70°F.	
Do not puncture.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)		None	
VENTILATION	LOCAL EXHAUST	Suitable	SPECIAL N.A.
	MECHANICAL (General)	Suitable	OTHER N.A.
PROTECTIVE GLOVES N.A.		EYE PROTECTION N.A.	
OTHER PROTECTIVE EQUIPMENT N.A.			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Avoid excessive heat. Do not exceed 120°F.	
OTHER PRECAUTIONS	
DOT Classification - Nonflammable Gas.	
Gas under pressure. Do not puncture or incinerate.	

Scott Specialty Gases

ROUTE 611 NORTH, PLUMSTEADVILLE, PA 18949 (215) 766-8861



Electronics Group

2330 HAMILTON BOULEVARD, P.O. BOX 648, SOUTH PLAINFIELD, N.J. 07080 (201) 754-7700

REGIONAL PHONE NUMBERS

PA (215) 766-8861 CA (714) 887-2571 MI (313) 589-2950 TX (713) 644-4820
NJ (201) 754-7700 CA (415) 659-0162 CO (303) 442-4700 MA (617) 245-8707

MATERIAL SAFETY DATA SHEET

SECTION I - MATERIAL IDENTIFICATION

CHEMICAL NAME: Isobutylene in Air

SUPPLIER: Scott Specialty Gases, Inc.

CHEMICAL FORMULA: C_4H_{10} /Air

ADDRESS: 2330 Hamilton Blvd., South Plainfield, NJ 07080

CHEMICAL FAMILY: Alkene in gas mixture

In Case of Emergency, call (908) 754-7700

DATE PREPARED: 4/23/92

OTHER DESIGNATIONS: None

SECTION II - HAZARDOUS INGREDIENTS

COMPONENT	CAS #	CONCENTRATION	EXPOSURE LIMITS (PPM)		
			ACGIH TLV	OSHA PEL	OTHER
Isobutylene	115-11-7	100 ppm	None established		
Air	25635-88-5	Balance	None established		

SECTION III - PHYSICAL DATA

BOILING POINT (°C): -194.4

SPECIFIC GRAVITY ($H_2O = 1$) @ 20°C: 0.88

VAPOR PRESSURE @ 20°C: N/A

PERCENT VOLATILE BY VOLUME (%): 100%

VAPOR DENSITY (AIR = 1): 1.2 kg/m³

EVAPORATION RATE (____ = 1): N/A

SOLUBILITY IN WATER 20°C: Insoluble

APPEARANCE AND ODOR: Colorless gas with a possible slight olefinic odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT AND METHOD	FLAMMABLE LIMITS	LEL	UEL
Nonflammable	N/A		

EXTINGUISHING MEDIA: Use what is appropriate for surrounding fire

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective clothing. Use water spray to keep fire exposed cylinders cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Compressed air at high pressures will accelerate the burning of flammable materials.

DISCLAIMER: The information in this Material Safety Data Sheet is offered without charge for use by technically qualified personnel at their discretion and risk. Scott Specialty Gases has made this sheet available with data we believe is reliable, but the accuracy and completeness of the data is not guaranteed and no warranty is either expressed or implied. Since Scott Specialty Gases has no control over the use of the product described herein, we assume no liability for loss or damage incurred from the proper or improper use of such product. This form is essentially similar to U.S. Department of Labor form OSHA-20.

SECTION V - REACTIVITY

STABILITY: Stable under normal storage conditions.

INCOMPATIBILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION IV - HEALTH HAZARD DATA

ROUTES OF ENTRY: Inhalation

EFFECTS OF OVEREXPOSURE: (ACUTE): The concentration of isobutylene in this mixture should not present any symptoms of toxicity. (CHRONIC): None (MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE): None

CARCINOGENICITY - NTP? NO

IARC MONOGRAPHS? NO

OSHA REGULATED? NO

EMERGENCY AND FIRST AID: Inhalation - Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN: Evacuate and ventilate area. Remove leaking cylinder to exhaust hood or safe outdoors if this can be done safely.

WASTE DISPOSAL METHOD: Return cylinders to supplier for proper disposal with any valve outlet plugs or caps secured and valve protection cap in place. Allow gas to discharge at a slow rate to the atmosphere in an unconfined area or exhaust hood.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): Use a self-contained breathing apparatus in case of emergency or non-routine use.

VENTILATION: Provide adequate general and local exhaust ventilation.

OTHER PROTECTIVE EQUIPMENT: Wear safety goggles, rubber gloves, and safety shoes. A safety shower and eyewash station should be readily available.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in well ventilated areas only. Keep valve protection cap on cylinders when not in use and secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Move cylinder with adequate hand truck. Cylinder should be refilled by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

Product: Methane

I. PRODUCT IDENTIFICATION

PRODUCT: Methane
CHEMICAL NAME: Methane
FORMULA: CH₄
SYNOMS: Marsh Gas, Methyl Hydride, Fire Damp, Sewer Gas
CHEMICAL FAMILY: Alkane
MOLECULAR WEIGHT: 16.043
TRADE NAME: Methane

II. HAZARDOUS INGREDIENTS

For mixtures of this product request the respective component Material Safety Data Sheets. See Section IX.

MATERIAL (CAS NO.): Methane (74-82-8)
WT (%): 100
1990-1991 ACGIH TLV-TWA (OSHA-PEL): Simple asphyxiant (None currently established)

III. PHYSICAL DATA

BOILING POINT, 760 mm. Hg: -161.5°C (-258.7°F)
SPECIFIC GRAVITY (H₂O = 1): Gas
VAPOR DENSITY (air = 1): 0.554 @ 0°C (32°F)
PERCENT VOLATILES BY VOLUME: 100
FREEZING POINT: -182.6°C (-296.7°F)
VAPOR PRESSURE AT 20°C.: Gas
SOLUBILITY IN WATER, % BY WT.: Slightly
EVAPORATION RATE: (Butyl Acetate = 1) Not applicable
APPEARANCE AND ODER: Colorless gas at normal temperature and pressure.

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: See Section II.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

Swallowing: An unlikely route of exposure.
Skin Absorption: No evidence of adverse effects from available information.
Inhalation: Asphyxiant. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting and unconsciousness.
Skin Contact: No evidence of adverse effects from available information.
Eye Contact: No evidence of adverse effects from available information.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:

No evidence of adverse effects from available information.

OTHER EFFECTS OF OVEREXPOSURE:

Methane is an asphyxiant. Lack of oxygen can cause death.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggest that overexposure is unlikely to aggravate existing medical conditions.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION.

None currently known.

EMERGENCY AND FIRST AID PROCEDURES:

Swallowing: This product is a gas at normal temperature and pressure.
Skin Contact: Wash with soap and water.
Inhalation: Remove to fresh air. Give artificial respiration if not breathing. Give oxygen if breathing is difficult. Call a physician.
Eye Contact: Flush with water.

NOTES TO PHYSICIAN: There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and clinical condition.

V. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method): -188°C (-306°F)
AUTOIGNITION TEMPERATURE: 537°C (999°F)
FLAMMABLE LIMITS IN AIR, % by volume
LOWER: 5.0%
EXTINGUISHING MEDIA: CO₂, dry chemical, water spray or fog.
SPECIAL FIRE FIGHTING PROCEDURES:

Evacuate all personnel from danger area. Immediately cool containers with water spray from maximum distance taking care not to extinguish flames. Remove ignition sources if without risk. If flames are accidentally extinguished, explosive

re-ignition may occur; therefore, special measures should be taken; e.g. total evacuation. Rapproach with extreme caution. Use self-contained breathing apparatus. Stop flow of gas if without risk while continuing cooling water spray. Remove all containers from area of fire if without risk. Allow fire to burn out. On site fire brigades must comply with OSHA 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Flammable gas. Forms explosive mixtures with air and oxidizing agents. Container may rupture due to heat of fire. Do not extinguish flame due to possibility of explosive re-ignition. Flammable vapors may spread from spill. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with approved device. No part of a container should be subjected to a temperature higher than 52°C (approximately 125°F). Most containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperature.

VI. REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: Temperatures in excess of 700°C.

INCOMPATIBILITY (materials to avoid): Oxidizing agents. Mixtures with Bromine pentafluoride, chlorine and yellow mercuric oxide, nitrogen trifluoride, liquid oxygen, oxygen difluoride may explode.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition or burning may produce CO/CO₂. At temperatures in excess of 700°C and in the absence of oxygen or air, methane may decompose to form hydrogen.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None currently known.

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

DANGER: Forms explosive mixtures with air (see Section VI). Immediately evacuate all personnel from danger area. Use self contained breathing apparatus where needed. Remove all sources of ignition if without risk. Reduce vapors with fog or fine water spray. Shut off leak if without risk. Ventilate area of leak or move leaking container to well ventilated area. Flammable vapors may spread from spill. Before entering area, especially confined areas, check atmosphere with appropriate device.

WASTE DISPOSAL METHOD:

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations.

VIII. SPECIAL PROTECTION INFORMATION.

RESPIRATORY PROTECTION (specify type):

Select in accordance with OSHA 29 CFR 1910.134. Respirators shall be acceptable to MSHA and NIOSH.

VENTILATION:

LOCAL EXHAUST: Explosion proof system is acceptable.

MECHANICAL (general): Inadequate.

SPECIAL: Not applicable.

OTHER: Not applicable.

PROTECTIVE GLOVES: Preferred for cylinder handling.

EYE PROTECTION: Select in accordance with OSHA 29 CFR 1910.133.

OTHER PROTECTIVE EQUIPMENT: Select in accordance with OSHA 29 CFR, 1910.132 and 1910.133. Metatarsal shoes for cylinder handling. Protective clothing where needed.

IX. SPECIAL PRECAUTIONS

DANGER:

Flammable gas under pressure. Use piping and equipment adequately designed to withstand pressures to be encountered. May form explosive mixtures with air. Ground all equipment. Only use spark proof tools and explosion proof equipment. Keep away from heat, sparks and open flame. Store and use with adequate ventilation at all times. Use only in a closed system. Close valve when not in use and when empty. Keep away from oxidizing agents.

MIXTURES:

When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death. Be sure to read and understand all labels and other instructions supplied with all containers of this product.

NOTE:

Compatibility with plastics should be confirmed prior to use. For safety information on general handling of compressed gas cylinders, obtain a copy of pamphlet P-1, "Safe Handling of Compressed Gases in Containers" from the Compressed Gas Association, Inc. 1235 Jefferson Davis Highway, Arlington, VA 22202.

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

Issued: September, 1981

SECTION I

MANUFACTURER'S NAME

Liquid Air Corporation

EMERGENCY TELEPHONE NO.

(415) 765-4500

ADDRESS (Number, Street, City, State, and ZIP Code)

One Embarcadero Center, San Francisco, CA 94111

CHEMICAL NAME AND SYNONYMS

Hydrogen

TRADE NAME AND SYNONYMS

Hydrogen

CHEMICAL FAMILY

Diatomic Gas

FORMULA

H₂

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Reacts with oxidizing agents such as Chlorine, Fluorine, Oxygen, etc.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	-422.99	SPECIFIC GRAVITY (H ₂ O=1)	
VAPOR PRESSURE (mm Hg.) @ B.P.	760	PERCENT. VOLATILE BY VOLUME (%)	100%
VAPOR DENSITY (AIR=1)	.0696	EVAPORATION RATE (<u>ether</u> = 1)	Greater than 1
SOLUBILITY IN WATER	Neg.		
APPEARANCE AND ODOR	Colorless and odorless gas/liquid		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) None (gas)	FLAMMABLE LIMITS in air	LeL 4.1	UeL 74.2
EXTINGUISHING MEDIA Water, dry chemical, CO ₂			
SPECIAL FIRE FIGHTING PROCEDURES Stop the flow of gas.	Use large quantities of water for cooling affected area and surrounding exposures.		
UNUSUAL FIRE AND EXPLOSION HAZARDS Highly flammable.	Can react explosively with oxidizing agents such as Chlorine, Fluorine, Oxygen, etc. May produce an almost invisible flame. Use caution when approaching suspected fire.		

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE Not life supporting.	
EFFECTS OF OVEREXPOSURE Asphyxia.	
EMERGENCY AND FIRST AID PROCEDURES Remove victim to open area. Give artificial respiration or resuscitation if necessary. Call doctor.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Any ignition source; uncontrolled release of gas or liquid to atmosphere.
INCOMPATIBILITY (Materials to avoid) None.			
HAZARDOUS DECOMPOSITION PRODUCTS None.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED If leak cannot be stopped by closing valve, carefully remove cylinder to an open area away from ignition sources. Avoid skin contact with liquid Hydrogen.	
WASTE DISPOSAL METHOD Controlled venting: Slow venting of gas (by use of regulator if possible) to atmosphere away from buildings, people, sources of ignition, by use of vent stack or other approved methods.	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type) Adequate ventilation.		
VENTILATION	LOCAL EXHAUST Required	SPECIAL
	MECHANICAL (General) Desirable	OTHER
PROTECTIVE GLOVES Leather gauntlet gloves for liquid handling.		EYE PROTECTION Faceshield or chemical goggles when handling liquid.
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Keep ignition sources away. Store with adequate ventilation and away from combustible and oxidizing materials.	
OTHER PRECAUTIONS Do not drop cylinders. Do not store near heat sources. Avoid cylinder contact with energized equipment.	

ATTACHMENT "C"

SAFETY PROCEDURES/FIELD OPS

(FLDOP'S)

See Accompanying Field OP Binder

ATTACHMENT "D"

SITE SPECIFIC HAZARD COMMUNICATION PROGRAM

Location Specific Hazard Communications Program/Checklist

In order to ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will utilize this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communications Program as a means of meeting site or location specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer, it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following hazardous information program has been established. All affected personnel will participate in the hazard communication program. This written program as well as WESTON's Corporate Hazard Communication Program will be available for review by any employee, employee representative, representative of OSHA, NIOSH or any affected employer/employee on a multi-employer site.

X Site or other location name/address:
Covitch Property/Former ATF Davidson Co. Main Street Northbridge, MA

X Site/Project/Location Manager: Michael G. Jennings

X Site/Location Safety Officer: John F. Kelly

X List of chemicals complied, format: HASP: X Other:

X Location of MSDS Files:
HASP

X Training Conducted by (name and date): _____

X Indicate format of training documentation: Field Log: X Other: _____

Client briefing conducted regarding hazard communication:

If multi-employer site, indicate name of affected companies:

Other employer(s) notified of chemicals, labelling and MSDS information:

WESTON notified of other employer's or clients hazard communication program as necessary.

List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or in a centrally identified location with the MSDS's. Further information on each chemical may be obtained by reviewing the appropriate MSDS's. The list will be arranged to enable cross reference with the MSDS file and the label on the container. The SO or location manager is responsible for ensuring the chemical listing remains up-to-date.

Container Labeling

The WESTON Safety Officer (SO) will verify that all containers received from the chemical manufacturer, importer or distributor for use on site will be clearly labeled.

The SO is responsible for assuring labels are placed where required and for comparing MSDS's and other information with label information to ensure correctness.

Material Safety Data Sheets (MSDS)

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will make sure procedures are developed to obtain the necessary MSDS's and will review incoming MSDS's for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have a MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDS's for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDS's will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or designated alternate. When revised MSDS's are received the SO will immediately replace the old MSDS's.

Employee Training and Information

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site or whenever a new hazard is introduced into the work area employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the worksite

- Physical and health risks of the hazardous chemicals
- The signs and symptoms of overexposure
- Procedures to follow if employees are overexposed to hazardous chemicals
- Location of the MSDS file and written hazard communication program
- How to determine the presence or release of hazardous chemicals in the employees work area
- How to read labels and review MSDS's to obtain hazard information
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals
- How to reduce or prevent exposure to hazardous chemicals through use of controls procedures, work practices and personal protective equipment
- Hazardous, non-routine tasks to be performed (if any)
- Chemicals within unlabeled piping (if any)

Hazardous Non-Routine Tasks

When employees are required to perform hazardous non-routine tasks the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may utilize during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee and emergency procedures.

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee shall contact the SO at which time information as to; the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and safety precautions which should be taken will be determined and presented.

Multi-Employer Worksites

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of SO and the site manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers as requested. MSDS's will be available for viewing as necessary.

The location, format and/or procedures for accessing MSDS information must be relayed to affected employees.

ATTACHMENT "E"

OSHA JOB SAFETY POSTER

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory civil penalties against employers of up to \$7,000 for each serious violation and for optional penalties of up to \$7,000 for each nonserious violation. Penalties of up to \$7,000 per day may be proposed for failure to correct violations within the proposed time period and for each day the violation continues beyond the prescribed abatement date. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$70,000 for each such violation. A minimum penalty of \$5,000 may be imposed for each willful violation. A violation of posting requirements can bring a penalty of up to \$7,000.

There are also provisions for criminal penalties. Any willful violation resulting in the death of any employee, upon conviction, is punishable by a fine of up to \$250,000 (or \$500,000 if the employer is a corporation), or by imprisonment for up to six months, or both. A second conviction of an employer doubles the possible term of imprisonment. Falsifying records, reports, or applications is punishable by a fine of \$10,000 or up to six months in jail or both.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State Labor or Health department or a State university.

Posting Instructions

Employers in States operating OSHA approved State Plans should obtain and post the State's equivalent poster.

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, GA	(404) 347-3573
Boston, MA	(617) 565-7164
Chicago, IL	(312) 353-2220
Dallas, TX	(214) 767-4731
Denver, CO	(303) 844-3061
Kansas City, MO	(816) 426-5861
New York, NY	(212) 337-2378
Philadelphia, PA	(215) 596-1201
San Francisco, CA	(415) 744-6670
Seattle, WA	(206) 553-5930

Washington, DC
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OSHA 2203

Robert B. Reich, Secretary of Labor

U.S. Department of Labor

Occupational Safety and Health Administration



To report suspected fire hazards, imminent danger safety and health hazards in the workplace, or other job safety and health emergencies, such as toxic waste in the workplace, call OSHA's 24-hour hotline: 1-800-321-OSHA.

This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 219-8615; TDD message referral phone: 1-800-326-2577

ATTACHMENT "F"

START SIP EQUIPMENT CHECKLIST

START EQUIPMENT REQUEST FOR

DATE LEAVING FOR FIELD: 4/16/96
 DATE EQUIPMENT TO BE RETURNED: 4/16/96

DATE SUBMITTED: 3/25/96

SITE LEADER(s): Mike Jennings

SITE NAME a: Covitch Property
 SITE NAME b: _____

PCS #: 1162-YO
 PCS #: _____

DATE ISSUED: _____
 RELEASED BY: _____

RECEIVED BY: _____

QTY	ITEM DESCRIPTION	QTY OUT	START ID #	QTY IN
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MONITORING EQUIPMENT

1	FID			
1	PID - Lamp type <u>10.2eV</u>			
	- Lamp type <u>eV</u>			
1	CGI/O2 METER			
1	RAD METER - MICRO R			
1	RAD METER - B/G III			
1	RAD METER - MONITOR 4			
1	DRAGER PUMP KIT			
1	DRAGER TUBES (TYPE)			
1 box	<u>vinyl chloride</u>			
1 box	<u>benzene</u>			
	MONITOX HCN			
	MONITOX H ₂ S			
	MONITOX CL ₂			
	MINI RAM			
	GILIAN PUMP SET (5)			
	GILIAN PUMP Charge			
	SKC PUMP SET (5)			
	SKC PUMP Charge			
	MERCURY VAPOR ANALYZER			

RESPIRATORY PROTECTION

	SCBA, DUAL PURPOSE			
	EXTRA SCBA CYLINDERS			
	LARGE AIR CYLINDERS			
	PAPRs			
	ULTRA TWIN RESPIRATOR			
	ESCAPE PACKS			
1 box	CARTRIDGE: <u>GMC-4</u>			
	Other: _____			

SAFETY

1	FIRST-AID KIT /BBP			
1	EYEWASH STATION 15 min			
1	EARPLUGS			
1	FIRE EXT (10 LB ABC)			
1	FIRE EXT (20 LB ABC)			
	LANTERN LIGHT (6 VOLT)			
	FLOOD LIGHT			
	5 GAL POTABLE H ₂ O JUG			
	BANNERGUARD - CAUTION			
	ROPE (TYPE & LENGTHEN)			
	TRAFFIC CONES			

BARRICADE / CHEMREL COVERALLS Circle One

	LARGE (PAIRS)			
	X-LARGE (PAIRS)			
	XX-LARGE (PAIRS)			
	XXX-LARGE (PAIRS)			

QTY	ITEM DESCRIPTION	QTY OUT	START ID #	QTY IN
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SARANEX COVERALLS (WHITE)

	LARGE (PAIRS)			
	X-LARGE (PAIRS)			
	XX-LARGE (PAIRS)			
2	XXX-LARGE (PAIRS)			

PE TYVEK COVERALLS (YELLOW)

	LARGE (PAIRS)			
	X-LARGE (PAIRS)			
	XX-LARGE (PAIRS)			
	XXX-LARGE (PAIRS)			

TYVEK COVERALLS (WHITE)

	LARGE (PAIRS)			
	X-LARGE (PAIRS)			
	XX-LARGE (PAIRS)			
	XXX-LARGE (PAIRS)			

BOOTS/GLOVES

1 pair	DISPOSABLE BOOTIES <u>latex</u>			
	WADERS (PAIR)			
	WORK GLOVES (PAIR)			
	COTTON GLOVES (PAIR)			
1 box	SURGICAL GLOVES (BOX-50 PAIR)			
	- Nitril			
	- Latex			
	- Vinyl			
1 pair	NITRYL (PAIR)			
	BUTYL (PAIR)			
	PVC (PAIR)			
	SILVER SHIELD/4H (PAIR)			
	OTHER (TYPE) _____			

SAMPLE CONTAINER

	40 ml VOA VIAL			
	125 ml CLEAR VOA VIAL			
	4 oz AMBER WIDE MOUTH			
	4 oz WIDE MOUTH JAR			
	8 oz AMBER WIDE MOUTH			
	8 oz WIDE MOUTH JAR			
	8 oz TALL JAR			
	16 oz TALL JAR			
	1 lt AMBER JAR			
	1 lt POLY BOTTLE			
	80 oz AMBER JUG			
	OTHER			

PART EQUIPMENT REQUEST FORM

QTY	ITEM	QTY	START	QTY	QTY	ITEM	QTY	START	QTY
DESCRIPTION	OUT	ID #	IN	DESCRIPTION	OUT	ID #	IN		
<u>SAMPLE PRESERVATIVES</u>				<u>DECON FLUIDS (concluded)</u>					
_____	SULFURIC ACID AMPULE	_____	_____	_____	1 LITER HEXANE OPTIMA	_____	_____		
_____	HCL AMPULE	_____	_____	_____	1 LITER METHANOL	_____	_____		
_____	NITRIC ACID AMPULE	_____	_____	_____	1 LITER 10% NITRIC ACID	_____	_____		
_____	N ₂ OH AMPULE	_____	_____						
_____	ALUMINUM FOIL	_____	_____	<u>DECON SUPPLIES</u>					
_____	RED RUBBER PIPET BULB	_____	_____	_____	PUMP SPRAYER - TAP H ₂ O	_____	_____		
_____	PIPET 5.75" DISPOSABLE	_____	_____	_____	PUMP SPRAYER - DI H ₂ O	_____	_____		
<u>SOIL/SEDIMENT SAMPLING</u>				_____	SQUEEZE SPRAYER DI H ₂ O	_____	_____		
_____	GLASS BOWL 2QT.	_____	_____	_____	SQUEEZE SPRAY ISOPROP	_____	_____		
_____	STAINLESS STEEL BOWL	_____	_____	_____	SQUEEZE SPRAY HEXANE	_____	_____		
_____	STAINLESS STEEL SCOOP	_____	_____	_____	SQUEEZE SPRAY METHANOL	_____	_____		
_____	STAINLESS STEEL SCOOPULA	_____	_____	_____	SQUEEZE SPRAY NITRIC ACID	_____	_____		
_____	HAND BUCKET AUGER 4"	_____	_____	_____	PLASTIC CEMENT TUB	_____	_____		
_____	HAND BUCKET AUGER 2 3/4"	_____	_____	_____	GALVANIZED TUB	_____	_____		
_____	SLUDGE/SED SAMPLER 4"	_____	_____	_____	5 GAL PLASTIC BUCKETS	_____	_____		
_____	SLUDGE SAMPLER HAMMER	_____	_____	_____	5 GAL WASTE CONTAINERS	_____	_____		
_____	SLUDGE SAMPLER LINER	_____	_____	_____	LONG HANDLE BRUSHES	_____	_____		
_____	AUGER EXTENSION 4'	_____	_____	_____	SHORT HANDLE BRUSHES	_____	_____		
_____	SHOVEL	_____	_____	_____	AUGER BRUSH	_____	_____		
_____	EKMAN DREDGE	_____	_____	_____	TUBE BRUSH	_____	_____		
_____	LITTLE BEAVER	_____	_____	_____	LIQUINOX (4 OZ JAR)	_____	_____		
_____	3'x4" POINT FLITE	_____	_____	_____	TRASH BAGS	_____	_____		
_____	3'x4" AUGER EXT. FLITE	_____	_____	_____	PAPER TOWELS (ROLL)	_____	_____		
_____	BOESCH EARTH DRILL	_____	_____	_____	PLASTIC SHEETING 10 x 20'	_____	_____		
_____	SLEDGE HAMMER	_____	_____	<u>SURVEY/MARKING EQUIPMENT</u>					
_____	12" PIPE WRENCH	_____	_____	4	FILM (ROLL OF 24)	_____	_____		
_____	24" PIPE WRENCH	_____	_____	1	CAMERA	_____	_____		
<u>WATER SAMPLING</u>				_____	VHS CAMCORDER	_____	_____		
_____	pH PAPER	_____	_____	_____	VHS VIDEO TAPE	_____	_____		
_____	pH METER	_____	_____	_____	WALKIE TALKIE (PAIR)	_____	_____		
_____	pH/TEMP.METER	_____	_____	1	WALKIE TALKIE Chargers	_____	_____		
_____	TEMP/LEVEL/CONDUCTIVITY	_____	_____	1	CELLULAR PHONE	_____	_____		
_____	CONDUCT/TEMP/SALINITY	_____	_____	1	RANGE FINDER	_____	_____		
_____	WATER LEVEL METER 300'	_____	_____	_____	COMPASS	_____	_____		
_____	KEMMERER SAMPLER	_____	_____	_____	BINOCULARS	_____	_____		
_____	4'x1" STAINLESS BAILER	_____	_____	_____	TRANSIT W/TRIPOD	_____	_____		
_____	4'x1.75" STAINLESS BAILER	_____	_____	_____	LEVEL W/TRIPOD	_____	_____		
_____	1"x36" STAINLESS BAILER	_____	_____	_____	SURVEY ROD	_____	_____		
_____	TEFLON BAILER	_____	_____	1 (KW)	ALUMINUM CLIPBOARD	_____	_____		
_____	DISPOSABLE POLY BAILER	_____	_____	_____	TAPE MEASURES (SIZE) : 100	_____	_____		
_____	DRUM SAMPLER	_____	_____	_____	MEASURING WHEEL	_____	_____		
_____	BACON BOMB	_____	_____	_____	WOOD STAKES 36"	_____	_____		
<u>PUMPS</u>				_____	WOOD STAKES 12"	_____	_____		
_____	PERISTALTIC PUMP	_____	_____	_____	PIN FLAGS WHITE	_____	_____		
_____	WATTERA CHECK VALVE (sm)	_____	_____	_____	FLAGGING (ROLLS)	_____	_____		
_____	WATTERA CHECK VALVE (std)	_____	_____	_____	FLUORESCENT PAINT (CAN)	_____	_____		
_____	WATTERA TUBING	_____	_____	<u>MISC. PACKAGING SUPPLIES</u>					
_____	POLYPROPYLENE TUBING	_____	_____	_____	SMALL BAGS	_____	_____		
_____	TYGON TUBING	_____	_____	_____	MED BAGS	_____	_____		
_____	TEFLON TUBING	_____	_____	_____	LARGE BAGS	_____	_____		
_____	50' GARDEN HOSE	_____	_____	_____	EX-LARGE BAGS	_____	_____		
_____	FILTER .45 MICRON (INLINE)	_____	_____	1	STRAPPING TAPE (ROLL)	_____	_____		
_____	BARREL FILTER	_____	_____	_____	DUCT TAPE (ROLL)	_____	_____		
_____	W/PUMP .45 MICRON	_____	_____	_____	VERMICULITE	_____	_____		
<u>DECON FLUIDS</u>				_____	ICE PACK lg/sm	_____	_____		
_____	5 GAL. TAP WATER	_____	_____	_____	SAMPLE COOLER 100 qt.	_____	_____		
_____	5 GAL. DISTILLED WATER	_____	_____	_____	SAMPLE COOLER 60 qt.	_____	_____		
_____	1 GAL. TYPE II DI WATER	_____	_____	_____	SAMPLE COOLER 48 qt.	_____	_____		
_____	5 GAL. TYPE II DI WATER	_____	_____	_____	SAMPLE COOLER 16 qt.	_____	_____		
_____	4 LT. HPLC WATER	_____	_____	_____	DOT 4-H PACKAGING	_____	_____		
_____	1 LITER ISOPROPANOL	_____	_____	_____	SALVAGE DRUM	_____	_____		

START EQUIPMENT REQUEST FORM

QTY	ITEM	DESCRIPTION
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QTY OUT	START ID #	QTY IN
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SPECIALIZED EQUIPMENT

_____	SPECTRACE/MET	_____	_____	_____
_____	PHOTOVAC PORTABLE	_____	_____	_____
_____	ECD/GC	_____	_____	_____
_____	SAMPLE OVEN	_____	_____	_____
_____	CENTRIFUGE	_____	_____	_____
_____	SIEVE SHAKER	_____	_____	_____
_____	EM31	_____	_____	_____
_____	WEATHERPAK/CAMEO II	_____	_____	_____
_____	GEOPROBE UNIT	_____	_____	_____
_____	STEAM CLEANER	_____	_____	_____
_____	GENERATOR 3500/5000 w	_____	_____	_____
_____	POWER INVERTER	_____	_____	_____
_____	100' EXTENSION CORD	_____	_____	_____

FUELS CONTAINERS

SAFETY CAN 2.5 gal.
KEROSENE CAN 5 GAL
FUNNEL

EXTRA NEEDED ITEMS: WRITE-IN

2 Trash bags w/ labels